FEBRUARY, 1876.

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THE

AMERICAN FARMER.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

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Progress in Agriculture.

BY JAMES ATLEE.

[Read before the Farmers' Club of Baltimore Co., Md., and furnished for publication in the *American Farmer*.]

While we contemplate with wonder and admiration the advancement made in the mechanic arts and sciences, we are apt to overlook the progress in agriculture, and sometimes imagine we are but little in advance of our ancestors. A retrospective view, however, will convince us that such is not the fact. The early settlers of this country,—although from the most advanced nations of that period,—had to contend with circumstances to them entirely new, and to commence life under different auspices, unaided by the appliances to facilitate labor to which they had been accustomed, and to contend with a soil and climate unlike that of their native homes. Owing to the difficulty and expense of importation, few animals of any kind were brought to this country, and the greater part of those imported, died, either from exposure, the want of proper food, or by becoming a prey to wild beasts.

The horse was then unknown as a beast of burden. The ox, the sheep, and other animals, were far inferior to those of the present day, and the coarse provender on which they had to subsist, did not tend to their improvement. The demands of this rigorous climate led to the cultivation of the natural grasses, as food for their stock, even before they were introduced from their native countries. Without beasts of burden, or with such rude implements for cultivating the soil as were then known, little was done which necessity did not force upon them; and, having a rich virgin soil which did not require very careful cultivation to secure a crop, they made but little progress toward real improvement in agriculture. It was then unpopular to hold advanced ideas, and those who assumed to do different from the customs pursued by their ancestors, were looked upon as visionary, and not regarded with approval or encouragement. Farmers exposed their stock to the severest cold of winter to toughen them, and held that housing and milking cows in the winter-time would kill them. But little fruit was planted, and such as was then known was of inferior quality. There was little advance indeed in any department, and but little to stimulate to improvement. The farmer or his sons seldom left their homes, and the beneficial influence of social intercourse and interchange of opinion was unknown and unappreciated, and even up to the time of the birth of our Republic—the centennial anniversary of which we are now celebrating—there had been no marked progress.

With our National Independence a new era dawned upon agriculture. Men from all sections of our country were brought together, and got a knowledge of what was passing around them, and of the advantages possessed by different sections for agricultural purposes. Previous to this, agriculture had not been patronized by the Government, and no associations for its promotion had been formed. Washington, when President of the United States, commended it to the fostering care of Congress, and recommended the appointment of "Boards of Agriculture" for the purpose of collecting and diffusing information, and by premiums and pecuniary considerations to encourage a spirit of discovery and improvement. About the close of the last century agricultural societies began to be established, among which were those of South Carolina in 1784; Philadelphia in the same year; New York in 1791, and incorporated in 1793; and that of Massachusetts in 1792; the last of which soon commenced the publication of a series of papers, called the "Agricultural Repository." The first National Society was the "Columbia Agricultural Society," organized at a convention held at Georgetown, D. C., in 1809, and which held its first exhibition on the 10th of May, 1810, offering large premiums for the encouragement of sheep raising, &c. In 1810 the Massachusetts Society held its first exhibition, at which premiums were offered and a plowing match instituted.

These early efforts for the encouragement of agriculture did not meet with much favor from the general farming community, and it was only by the perseverance and enterprise of the more intelligent that these prejudices were overcome. Now we have thousands of associations in the form of State and County Societies, Farmers' Clubs, and Granges, bound together in mutual interest to foster this the most important industry of our country.

The formation of these associations created a demand for the establishment of agricultural papers, and, although there had been many essays, and some publications on the subject, the *American Farmer*, commenced in Baltimore in 1819, is supposed to have been the first periodical started strictly in the interest of agriculture. This periodical has continued to be published up to the present, and, although it has survived for more than half a century, and seen many co-laborers in the same good cause fall by the way, it has shown no signs of decrepitude, but with each recurring season comes freighted with encouragement and good cheer to the tiller of the soil.

Up to the time of our Independence there had been but little improvement in implements and appliances for cultivating the soil and saving the crops. Previous to that the implements consisted of a rude wooden fork, a spade, a plow, a harrow, and a heavy cart made entirely of wood. The plow had wooden mouldboard, with a small point of iron tied on with straps of raw hide; the beam was supported by a wooden wheel, and it was drawn by oxen yoked by their horns, and attached to the plow by means of a wooden pole, fastened to the yoke with raw-hide straps, and extending to the beam of the plow. The first patent taken out for a cast-iron plow was by Charles Newbold, of Burlington, New Jersey, in 1797. A cast-iron plow, however, had been invented in Scotland as early as 1740. This being a great improvement over the wooden plow, attracted great attention, and led to many improvements, and in 1808 Thomas Jefferson wrote a treatise on the proper form for the mouldboard, discussing it on scientific principles, calculating its size, form, and curvature, with a view to lessen its friction. The harrow perhaps has undergone less change than most implements, although there has been decided improvements,—such as making it in sections, so as to be more flexible, more easily cleaned, &c.

Among the more recent inventions to facilitate farm labor are the seed and grain drills, which deposit and cover the seed more evenly than it could be done by hand; the reaper and mower, which have added millions to the product of the country by enabling the farmer to cultivate an increased area, and secure his harvest in due season. The sickle had been used until within the recollection of the present generation, when it was superseded by the cradle. Yet during that period it had not been considered satisfactory, for as early as the commencement of the Christian era, it is said, the Gauls used a series of knives or teeth on the tail-end of a cart, which was pushed in front of oxen, and which stripped off the heads or ears of grain. It remained for Obed Hussey, of Baltimore, to invent the first practical machine for reaping grain, which he patented in 1833, and upon whose principles have been based the most complete reaping and mowing machines of the present day.

It is within our own recollection that all the grass was not only mowed with the hand scythe, but the hay gathered and hauled with the hand rake and fork. Now we can accomplish ten times the amount of work with the same manual labor. The same may be said of the threshing of our grain. How familiar in our earlier days was the thump, thump, of the flail, as a sound that might be heard at the barn during the continuous winter, or the tramp, tramp, of the horses, as they pursued their continuous round over the golden sheaves! Now we thresh and prepare in a few days what it would then have required months to accomplish.

Thus in every department of agriculture the inventive genius of the country has come to our aid, in solving the great problem of labor. Yet with all the progress made we have not reached perfection, but with each recurring season we have some new evidence of the unlimited genius which elevates man above the brute creation. Nor are we behind the older nations. At the World's Expositions of London and Paris, the American machinery almost invariably carried off the palm of victory. At a trial of reapers, where an American, an English and a French machine were in competition, the American machine cut its acre in twenty-two minutes, that of English manufacture in sixty-six, and the French machine in seventy-two minutes. The successful machine, says a French journal, did its work in a most exquisite manner, not leaving a single stock ungathered, and discharging the grain in the most perfect shape for the binders. At a trial of threshers at the same exhibition, the American machine was victorious. Six threshers with flails threshed in one hour 60 litres of wheat; the American machine 740 litres; the English machine 410 litres; one French machine 250 litres, another French machine 150 litres.

So successful were the American inventors at the World's Exposition, that a French agricultural journal said: "All the laurels, we are free to confess, have been gloriously won by Americans."

Progress in the improvement of stock has kept pace with that of the mechanic arts. We have referred to the inferiority of the stock first imported into this country; the first importation being probably for the colony on the James River, Va, about the year 1609 to 1611, and comprising about one hundred head. These accessions were looked upon with such favor that orders were issued forbidding the killing of domestic animals under penalty of death. Thus protected, they accumulated so rapidly that in 1639 they amounted to about thirty thousand. The early importations were brought from different countries, probably from England, Spain, Holland, Sweden and Denmark by the colonies settling this country, but apparently without an eye to the improvement of the stock, and under the treatment they received they diminished in size from generation to generation.

It was not until about the middle of the last century that much attention was given to the improvement of cattle either in this country or Europe. Bakewell, a hale, broad-shouldered, clever Englishman, a lover of good beef,—as his countrymen have since learned to be,—sat in the huge chimney-corner of his log kitchen, which was hung around with the finest cuts of dried beef, preserved as *specimens* of fine proportions, thus demonstrating what could be done by attending to true physiological laws in breeding of cattle. Bakewell was a man of great sagacity, and a close observer, and advocated a new system of animal development. He aimed to es-

tablish a breed which would give the greatest amount of saleable beef for the amount of feed consumed. Smallness of bone, and tendency to fatten and mature early, were considered indispensable qualities. Up to this time cattle were kept until they were eight years old before they were considered fit for the shambles. Other breeders soon entered the field of competition. The Colling Brothers directed their efforts to improving the Short-horns. The Duke of Bedford, Quartley, and others, espoused the claims of the Devons, and Tompkins those of the Herefords. These breeders selected their stock with reference to points most coveted, and attained great success. Among the earlier importations of these improved cattle were those of Messrs. Goff, Ringgold and Patterson, of Maryland. Those imported by Patterson were probably of the Bakewell stock, while those for Goff and Ringgold were Short-horns. In 1812 Col. Sanders, of Kentucky, sent for twelve head of the best that could be found in England. A few "Short-horns" were imported into New York as early as 1792 and 1796. Other importations were made in 1819 and 1822. The Short-horns were received with great favor, and various importations were made from time to time which tended greatly to improve our stock by crossing with the natives. The Hon. Henry Clay, of Kentucky, was among the first to introduce the Herefords in 1817. In 1824 Admiral Coffin presented the "Massachussetts Society for the promotion of Agriculture," a Hereford bull from the Tompkins stock. The largest importation of Herefords was by Messrs. Corning and Sotham, of Albany, in 1840. The Hon. L. A. Dowley, of Boston, imported several animals of this breed in 1852, a part of which were afterwards sold to John Merryman, of Hayfields, Baltimore county, Maryland, who has one of the largest and finest herds of Herefords in this country.

The importations of Devons have been more numerous, and have been bred with reference to beef and the working quality of the oxen, which excel in quickness and docility. Some years since George Patterson, of Maryland, made importations of this breed, and bred them with special reference to their milking qualities, with some success. In addition to these, many recent importations have been made of Ayrshires, Alderneys and Jerseys from the Channel Islands of England, which have been bred exclusively for their milking qualities, and have been great acquisitions to the dairying interest of the country. Among the earlier importers and breeders of the Jerseys were the McHenrys of Maryland.

The horse, the most noble of animals, has been greatly improved by breeding to certain purposes, until families have been established so diverse as to suit all varieties of requirement.

Sheep husbandry has been subject to many vicissitudes. The first sheep imported into this country were probably for the colony on the James River, Virginia, in 1609. They throve so well in their new homes that in 1648 they had increased to three thousand. About the year 1625 sheep were introduced into New York from Holland, and other importations were made from the same country in 1630; and although the climate seemed well suited to them, they succumbed to their enemy the dog, so that in 1643, after a struggle of eighteen years, there were only sixteen sheep left in the whole colony. The quality of the sheep both for mutton and wool have been greatly improved by judicious breeding. Our Southern territory is peculiarly adapted to wool-growing, and although European countries are celebrated for their manufactures of woolen fabrics, it was left for our country to receive the highest award at the World's Fair in London in 1851, for a fleece grown in the State of Tennessee, both for the fineness and beauty of staple, when Germany, Spain and Saxony were in honorable competition.

Whilst all other stock required the protection and fostering care of the colonies, the hog rooted his own way, subsisting on the mast of the forest, and increasing so rapidly that at one time the colonies were likely to be over-run with them. Many became wild from running in the woods, and furnished meat for the Indians, and as nature adapts itself to circumstances, the hog soon suited himself to his vocation, and became a long-legged, fleet-footed, slab-sided animal, with the parts which procure its living most prominently developed, and better adapted for sub-soiling than for the pork barrel. The first improvement which attracted attention was a pair of pigs sent to General Washington by the Duke of Bedford, and entrusted for safe delivery to the care of one Parkinson, but who was so dishonest as to betray his trust and sell them on his arrival in this country. They were long known as the "Woburn Hog," and in some sections as the "Bedford Hog." They were a cross of the China with a large English breed; they were generally white, sometimes spotted. They were common in Maryland and Virginia, and were bred extensively at one time by Genl. Ridgely of Hampton, in Baltimore county, Maryland. Since that time there have been introduced other breeds, such as the Essex, Suffolk and Berkshire, which are held in favor by different breeders on account of their peculiar points of excellence, such as docility, early maturity, fineness of texture of meat, &c.

Neither time nor space will permit in this essay to attempt to review the vast increasein the various products of the country, or to consider the almost innumerable new varieties of products that have been originated by skillful propagation and judicious cultivation, or to speak of the luxuries now enjoyed which were unknown to our ancestors. Let the farmer then take courage, knowing that upon the productive interest rests the prosperity of any country, and with the farmers, organizations for the encouragement and protection of this great interest, the future is portentous of good.

Brains and Method in Farming.

The editor of the *Southern Cultivator* has an incisive style which makes the sparks fly as steel against flint, when his logic strikes the persistent follies of Southern agriculture. Hear him "let out" on shiftless, routine, farmers:

Could talking or writing have availed anything, enough has been said and written long ago to have depopulated the towns and established

an impassable blockade for bread and meat around the Cotton States. We do not propose now to waste ink arguing the point. Our purpose is, if possible, to aid those who are content to stay in the country and work. We believe that farming properly conducted, *does pay*—that its profits are reasonable and sure, when brain and brawn co-operate cheerfully, intelligently and energetically; but we believe just as fully, that speculative, careless, routine, uncalculating, unscientific farming will not pay, but will, with fearful speed, make bankrupts of those who practice it. Illustrations of the latter proposition abound on every side—those of the former, whilst far from being so numerous, may be seen in almost every community—a few farmers standing head and shoulders above the unthinking crowd.

Ever since the war, the land has resounded with complaints of *labor;* with more justice it should be of lack of *brains*—brains to plan, brains to calculate, brains to execute—brains to decide what crops will pay, how much labor will pay, how much and what manures will pay—what rest should be given to the soil, what restitution made for its depletion by crops, what rotations will pay best and longest maintain fertility of the soil—what stock will pay, best and most economical modes of feeding—these and hundreds of other like questions call most loudly for strong, educated, thoroughly-trained brains. Away with the practice of making tenants or partners of negroes, and delegating to them the direction and management of our Southern agriculture. What would be thought of a merchant or a contractor who would put negroes in charge of his business? Does farming require less judgment, less perception, less tact than buying and selling goods?

Whilst brains are called for on the farm *every* day of the year, they are especially needed this month to plan the year's campaign. If the past has been a failure, what must be done to make the future a success? A decision on this point is not always easily reached. The weather, the kind of crops, the time and manner of plowing—the manure used and its mode of application, the lack of manure, using too much labor and paying too dearly for it—starting crops a little too late or lying by a little too early, a deep plowing when it should have been shallow, rows too wide—too many or too few stalks to the acre, good or bad seed—how great the factors that enter into the problem! Think you that any but a careful observer, a close calculator, a patient and profound thinker can solve it?

With the light of past experience before us, what crops shall we plant? A part of the answer is as plain as the noonday sun: provision crops of some kind, sufficient at least to run the farm. Everybody sees and admits that. In this connection, we would urge again the manuring of all corn lands, not likely to suffer from drought, to a very *high degree*. Very much is to be gained by pushing such lands to a yield of 75 to 100 bushels per acre. On dry uplands the benefits of high manuring may be lost through drought. Not so with valley lands. Seventy-five to one hundred bushels of cotton seed and three to four hundred pounds of acid phosphate per acre, may be very *safely* and *profitably* applied. The cost will be from 15 to 20 dollars per acre—the gain (with same hoeing and plowing) from 60 to 75 bushels corn. Will not those who doubt, try the experiment on *one* acre this year—or if their faith is very weak, on a *half* or *quarter* acre? We want, friends, to get you out of the old ruts—the draft is too heavy and you are about to stall. There is no wisdom, no common sense, in pursuing the same course year after year, when the end is nothing but failure—utter failure!!

Another proposition, palpable to every reflecting man, is that every one's operations should be brought sharply within the limit of his means. Credit at all times is hazardous—during periods of great financial disturbance it is almost invariably disastrous. Creditors then become unusually clamorous, and property brings little when forced to sale. But what should be done if one is already in debt, it may be asked. Sell if need be everything over and above what is needed to run a *one*-horse farm, and start from the *bottom*. Show yourself *honest* and you will not need homestead or other laws to protect you. Creditors are exacting, because they fear *dishonesty*. When one firmly and cheerfully resolves to pursue a course like this, it is surprising how little is required to run a farm and support a family till a crop is made. A cow and a garden will keep starvation a long way off. Just think of the quantity of Irish potatoes that can be raised on a little patch of ground—how early in the season they are available—and how nearly this tuber can supply the place of bread. Whilst urging this heroic treatment, we hope few will need it. We are sure, however, that very nearly all our farmers would be bettered by more or less contraction of business, selling enough to pay off old debts and then adhering firmly and inflexibly to the maxim, "pay as you go."

The Phosphates as Food for Plants.

In the article on this subject from the *Scientific Farmer*, given in our last, the percentage of phosphoric acid in Navassa guano and South Carolina rock was reversed. The Navassa guano contains from 32 to 36, and South Carolina rock from 24 to 28 per cent.

Prof. Goessman, continuing the consideration of Phosphoric Acid, makes the following instructive statements:

The "super-phosphates" and "ammoniated super-phosphates" include by far the largest proportion of our manufactured commercial fertilizers. The phosphoric acid they contain is usually obtained from raw and boiled bones, from the bone-black waste, or from the mineral phosphates. It is stated, on good authority, that more than four-fifths of the super-phospates made in this country are produced from the South Carolina and Navassa mineral phosphates, by pulverizing and heating with sulphuric acid, etc. Those mineral phosphates which contain a considerable portion of the carbonates of lime and iron, or of hydrates or oxides of iron and alumina, are unfit for the manufacture of superphosphates, for they require larger quantities of

sulphuric acid to produce the desired effect, thus increasing the cost too much.

Chemical composition is the first essential in all fertilizers. Next in importance is the condition in which the several ingredients occur. But we will only say a word here in regard to phosphoric acid, in addition to what has been previously intimated in several places. As commonly found, this substance is in a comparatively insoluble condition. If applied to the soil in this state, its action is slow. Now the efficacy of a manure is measured, in a great part, by the immediate results of its application. To remedy this objection of tardy results, the crude phosphatic compounds are treated with sulphuric acid, etc., as before pointed out, which renders a certain portion of the phosphoric acid soluble.

Another portion usually present in the superphosphate, is called "reduced phosphoric acid," and occupies a position between the soluble and insoluble, both in commercial value and time of its availability. The comparative values of three conditions of the article in question range about as the figures 2¾—2—1. The soluble phosphoric acid in super-phosphates, alkaline phosphates, and guanos, etc., have the highest valuation; that in crude guano is about equal to the "reduced" in super-phosphates; that in the crude mineral phosphates (finely ground,) bones, bone-ash, bone-black, stable manure, etc., etc., has a place in the lowest grade. The Germans make more accurate distinctions than we of America,—the phosphoric acid in each substance, almost, having a particular value with them

Mechanical condition is of great importance in a manure of any sort, and especially so with these hard mineral phosphates, or bone manures, in their natural state. Of course the manufacturer of super-phosphates will grind his crude material finely; for the finer the bone or mineral, the greater effect will the sulphuric acid have upon it. But in buying the crude material, for use upon the farm, a sharp distinction should be made between coarse and fine.

The super-phosphates proper are only valuable for the phosphoric acid they contain (though perhaps a slight addition should be made for the lime in them on some soils, though it is of no importance commercially,) neither nitrogen or potash usually entering into the composition.

Ammoniated super-phosphates are so called because they also contain nitrogen, although that substance is rarely present in the form of ammonia. In the majority of cases the nitrogen is added in some nitrogenous animal matter, such as ground bones, fish and Peruvian guanos, meat-scraps, blood, refuse from glue factories, hair, horn, bits of leather, etc.; and sometimes potash saltpetre (nitrate of potash,) and Chili saltpetre (nitrate of soda,) are used for this purpose. In regard to the comparative value of these two classes of phosphatic manures, of course the latter are worth more per ton on account of the nitrogen contained in them, though the former are usually the cheaper source of phosphoric acid

The super-phosphate made from bones is also more valuable than that from the mineral phosphates, considering only the insoluble phosphoric acid, on account of the fact that bones decompose more readily in the soil.

The class of phosphatic manures just considered, *i. e.* those specially valuable for the phosphoric acid they contain, are most economically employed in a system of general farming in connection with barn-yard and other nitrogenous manures, and the potash fertilizers. It is seldom that the use of such special manures is of much benefit alone, in comparison with the mixture as advised.

Peruvian guano as a means of furnishing phosphoric acid is particularly valuable; this substance being quite prominent in its composition, from 12 to 22 per cent. And the new "rectified guano" is guaranteed 10 per cent. of the soluble acid besides 8.2 per cent. of nitrogen (= 10 per cent. of ammonia,) and 2 per cent. of potash. The annual consumption of "raw guano" in this country has ranged from 30,000 to 35,000 tons. Of late years, however, the sales have fallen off in a marked degree, owing in great part, doubtless, to the irregularity in its composition, and consequent uncertainty in its action upon the soil. A large proportion (nearly all in some cases) of the phosphoric acid in the raw guano has been insoluble, which must have contributed not a little to the unsatisfactory results sometimes obtained from its application

The rectified guano is the crude material treated with sulphuric acid, and reduced to a uniform composition, and pulverulent mechanical condition. In this form there can be no doubt of its efficacy and value as a fertilizer, particularly in connection with potash manures.

Cotton Crop for 1875.

The December Report from the Agricultural Department at Washington gives full reports of the cotton crop for 1875, in which the commissioner says, that he "has no hesitation in interpreting them to mean a crop of about 4,100,000 bales, with small probability that it will either exceed or fall short of that amount more than 50,000 bales." The only States in which the quality of lint is improved over 1874, are Arkansas and Texas, whilst in North and South Carolina and Georgia, in three-fourths of the counties, the quality is represented as inferior to that of 1874.

In relation to the relative proportion of lint in 100 lbs. seed cotton, the Department put to each county correspondent the following questions:

How many pounds of lint will 100 pounds of seed-cotton make this year?

How many pounds to the hundred last year?

The estimates, which were usually made by averaging carefully the results of work of gins in different portions of the county, have been tabulated, producing the following State averages.

	Lint in 100 lbs. seed-cotton.		Per cent. in '7. compared with 1874.
	1875.	1874.	
North Carolina	29	32.2	90
South Carolina	29.2	33	88
Georgia	30	32	94
Florida	27 5	28	98
Alabama	31.4	31 8	99
Mississippi	30	32.2	93
Louisiana	3 .5	30.7	99
Texas	31	30.6	101
Arkansas	31.7	31.3	101
Tennessee	28.7	30.2	95

No one of the Atlantic States appears to exceed 30 pounds to each 100 of seed-cotton this year, and the average of all is very nearly 30. Last year this belt of States surpassed in figures of condition every State of the Mississippi Valley. It is shown that the rate of yield of lint to seed corresponds closely with the total quantity produced in each State of these two sections. Texas, Arkansas and Alabama make the highest averages in 1875: in 1874, South Carolina, North Carolina, Georgia and Alabama took precedence. One pound to three, the old rule for estimating lint, appears to be substantially correct in a year of good yield; 32 pounds in 100 may be considered nearer an average figure for the best lands, and anything under 30 a poor average return. Last year did not quite reach this average on account of the poor crop in the Mississippi Valley, and the year presents a return of 96 per cent., as compared with last year.

Maryland State Agricultural Society.

The monthly meeting was held on 6th ult., at which the President, Mr. Davis, again took up the subject which he had brought before the Society at its previous meeting, relative to the release of the cultivated lands of the State from taxation, and gave his reasons as to the justice of the measure, which were very interesting to those present.

Mr. Davis spoke of the depression of agriculture occasioned by the emancipation of 80,000 slaves in this State, and remarked that the schemes of immigration and other plans to induce a supply of labor from Europe and elsewhere had failed to accomplish the ends intended, and that the consequence felt by the interest we represent, in the loss of our slaves, might be compared in its effects to the withdrawal of $25,000,000 capital from the banks on the commerce of Baltimore city. The result has been, with us, that land has become a drug, and cannot be sold at one-third its former value.

If the proposition he has made is not accorded to them, then the farmers should insist that the State should lay on a just tax on all non-tax-paying property, viz: Churches, literary institutions, railroads and canals, mineral interests, fisheries and oyster-beds, and next make productive the 7½ millions in the Chesapeake and Ohio Canal. To these sources might be added many others upon which taxes might be properly levied, now, to the amount of many millions, exempt from or enabled to escape taxation.

If this is done, and the State returns to old-fashioned simplicity, efficiency and economy, practiced in the days when Geo. McCubbin was treasurer and Jeremiah Hughes was printer, the State could well afford to dispense with a large portion of the direct tax on land, or to abolish it altogether. To show the difference in the expenses of the State during the periods alluded to above and at the present time, Mr. Davis made the following comparison:

"A session of the Legislature then cost $40,450, now $191,152; judiciary then $35,800, now $91,625; treasury then $3,150, now $16,825; land office then $450, now $2,500; arms and military then $1,100, now $23,816; printing then $1,400, now $69,000; colleges, academies and schools then $12,500, now $80,000; salaries of the executive then $7,966, now $14,039. This is enough to show the reckless extravagance of our present rulers as compared with the system of our forefathers, and I think it will be safe to say that we had as good laws, as much intelligence, equal honesty, and that even-handed justice was dispensed as cheaply and quickly then as now. By economy in the State expenses and an equalizing of taxation, partial relief may yet come to the oppressed industrial element."

Mr. Davis received the thanks of the association for the able paper, and it was determined to bring up the subject at a future meeting.

A reference was made to the necessity of the renewal of an effort to have a dog and sheep law enacted by the legislature now is session, and that the proceeds of the tax on dogs should go to indemnify the owners of sheep lost by dogs, instead of to the school fund. The clubs and granges have taken up the matter, and, if it is pressed very generally by them, more good will be likely to be realized to the object in view.

Maryland Tobacco Trade.

We have heretofore noticed the fact that a committee of tobacco planters and tobacco merchants was appointed to memorialize the legislature to adopt some measures by which this great product of our State shall be freed from the injuries now inflicted upon it by the present Inspection system. On the 10th ult. the committee met in Baltimore, and unanimously adopted the following memorial, to be laid before the legislature at an early date. It was subsequently presented to that body, and referred to the committee on inspections:

"The memorial of the undersigned respectfully represents that great abuses have grown up under the existing laws of the State relating to and regulating the inspection of tobacco; that these abuses (more particularly referred to in the report of a committee to the public meeting held in Baltimore on 2d of last December, and hereto appended) have assumed such proportions as greatly to have injured the reputation of Maryland tobacco in domestic as well as in foreign markets; that the said laws, even when fairly and properly administered, impose onerous and irksome burdens upon those engaged in the growing of tobacco, and those engaged in its manufacture and in its exportation; that the abuses above referred to have been patiently borne by planters and by the trade until the present time, when it has become clearly apparent that unless the said laws be entirely repealed, and all previous legislation relating to Tobacco Inspection be abrogated, the injury to the planter—already serious—will increase, and the demand for the staple will correspondingly fall off, working ultimate disaster and ruin to this important branch of our commerce. Your memorialists therefore respectfully petition your honorable bodies to take such action in the premises as will operate to remove the abuses complained of."

Montgomery Co. (Md.) Farmers' Convention.

This annual meeting, always well attended and the occasion of the exchange of useful experiences, and this year quite as animated as usual, was held on the 13th January, at Sandy Spring, with Mr. Henry C. Hallowell in the chair and Mr. Granville Farquhar, secretary.

Mr. Hallowell opened the session by a short and effective address, congratulating the convention on the full attendance, which betokened an undiminished interest in agriculture in this the centennial year, and briefly noticing the advances in that art in the century which marks the age of our country. One hundred years ago American agriculture was restricted to a narrow strip of land along the Atlantic coast, slowly creeping up the borders towards the foot of the mountain ridges. The reaper and mower, without which we could not save our crops, were unthought of, and the farmer of that day gathered his little crops with the sickle. The plow, as we know it, of cast iron or steel, was then all unknown, and in its place was an uncouth implement of wood shod with iron.

The steam plow, which now in the West and South bids fair to be more than an unrealized dream, was then, of course, not even an affair of the imagination.

The past hundred years having done so much for us, what ought not we to do, in turn, for the next century? It is certain that it becomes us to do our part in promoting the march of progress, and just such meetings as these form one way of accomplishing great good. The coming together of men who, while workers in practical fields, are still men of thought, brightens up ideas and evokes useful knowledge, and sends us away to our ever-changing and ever-recurring labors with renewed energy.

He well understood that in farmers' meetings like these it is not always those who talk the most, knew the most, yet no man having information likely to be useful to his brethren had the right to keep it to himself even from excess of modesty. He suggested that many a man was like a Leyden jar charged with electricity, which needed the contact of some outside body to touch it off, and many a man full of useful information only wanted a hint or a question to set it free.

A committee appointed at last year's Convention on the subject of a *neighborhood laundry*, reported that the expense of establishing such an enterprise was so heavy, that in view of the want of sufficient assurance of continuous support, owing to the distance at which intending patrons lived, it was recommended to postpone for the present the erection of such an establishment.

The Committee on the *Dairy* submitted a verbal report. There had been an increase of yield, but the prices received for products had declined. Some additions to the thorough-bred stock of the county were noticed

Reports from the Farmers' Club of Sandy Spring, the Enterprise Club, and the Montgomery Club, were then read, and will be found below.

Mr. James S. Hallowell, whose device for saving the weight on the necks of horses in grain drills had been referred to, was asked to describe it. He said that a drill with seed with fertilizer attachment was too heavy for two horses, unless they were very large horses. In passing over plowed ground and with the teeth plowing into the soil, he thought three or even four horses not too many, though his horses are about as good as other people's. To keep the weight of the drill off the necks of the horses at the tongue, he has a V-shaped piece of iron about 12 or 16 inches long attached, the apex downwards, to the underpart of the drill, and through a ring in the apex goes a chain by which the lead horses pull.

A discussion on the qualities of *Locust posts* seemed to develop the fact that there were two kinds of locust, white and yellow, and that posts of the latter were much the more durable, several instances being cited where posts of it had lasted from fifty to sixty years. Mr. Sam'l Hopkins, of Howard, had posts certainly fifty years old, and plenty of suckers of the same trees to distribute to any who wanted them.

Should Old Orchards be Cultivated?

Mr. B. Rush Roberts thought it was safe and expedient to cultivate an orchard all the time, provided there was not an interval when this course being abandoned the roots would come too near the surface, and were broken up when cultivation begins again. He recommended ashes around the tree as an antidote to the borer.

Mr. Asa Stabler said after orchards are ten or twelve years old, hogs are the best cultivators. Leave the orchards in grass, and make them a range for pigs. It is the best plan for orchards and pigs both.

Mr. Wm. John Thomas' experience agreed with Mr. Roberts' view. A young orchard cultivated every year throve finely; when the cultivation was interrupted the trees soon died.

Cultivating old orchards looking to recuperating them did not, according to Mr. Geo. Brooke and Col. Washington Bowie, result satisfactorily. Mr. Gilpin got his orchard into a good sod and pastured closely with sheep; his crops of apples are good. Mr. Robert Stabler said the grass should be kept from around the stems of the trees as a security against the borer. Cultivates his orchards when they are young, and always keeps the ground rich. In trimming his trees he does not cut off large limbs close to the body of the tree. This latter course is apt to produce decay.

Mr. E. J. Hall, President Montgomery Co. Agricultural Society, has an old orchard with trees 40 feet apart. One year he plows it one way and puts in potatoes, and the next year he plows it the other way and puts in same crop. Doesn't get many potatoes, but his trees are improved. Believed in making orchards rich. Thinks deterioration in our orchards comes from the decline in the quality of the soils.

Mr. Owens planted an orchard 35 years ago; the trees proving not what he wanted, he grafted them, and continued to work the orchard, manuring it every time it was worked. The

trees flourished, and as soon as they were well-grown turned in his hogs, and keeps them there still. Occasionally takes a grubbing hoe, loosens the earth around the trees and sows a handful of rye. The hogs soon root up the grass.

Is it Profitable to Crush the Cob with Corn for Feed?

One gentleman did not think rotten wood any better, though it may be as good as cobs; but Mr. Wm. Henry Farquhar believed there was unquestionably nutriment in the cobs, yet whether the cow can digest it is doubtful.

Mr. Roger Farquhar concluded it was better to have a mill and grind corn and cobs—the latter certainly no disadvantage—than to lose time, expense, toll, &c., in going to mill; while Mr. Edward P. Thomas thought the labor would cost more than it saved.

Mr. Granville Farquhar constantly uses the corn and cob meal. The cobs make "ballast" for which clover hay—if you have it—is certainly preferable; but this plan saves shelling, taking to mill, toll, &c., and Mr. Geo. Stabler, a dairy farmer, got more milk by changing his feed from fine meal to corn and cob meal. The mills don't grind the corn fine enough—the finer the better.

Mr. Asa Stabler cited a gentleman in Harford Co. who feeds yearly 50 to 60 head of cattle, and buys corn and has it crushed at a cost of 50 cts. a barrel. He feeds for the top prices in the Philadelphia markets.

Will it Pay to Cut Fodder in a Cutting-Box for Feeding?

Mr. Roger Farquhar cuts by horse-power. The cut fodder goes much further and is much easier to feed than uncut.

Mr. E. J. Hall gave the substance of a report from a Carroll Co. farmer of a fodder crusher, which he has used for a number of years. This gentleman last year had four horses and six cows, and kept them wholly on the fodder, cut in this way, from 16 acres of corn. In half a day he cuts enough for one week, and there is *no waste.*

Mr. Fredk. Stabler saw no advantage in the practice, but Mr. George Stabler said he can carry 50 per cent more stock.

Would it not Pay to Use Oil Cake in Feeding Cattle?

Mr. William H. Farquhar referred to his visit to England, where in fattening cattle this was so largely relied upon; and Mr. Chas. F. Kirk cited Mr. Coffin's use of it on the Muirkirk farm; but Mr. Wm. John Thomas thought with our corn meal we could afford to neglect the oil cake and turnips of the English.

The proportions in which clover hay and mill feed should be fed, when bought at the same price, to get the greatest benefit from them, was referred to the Montgomery Club for examination and report; and the best way of increasing the quantity of home-made manure was referred to Mr. James S. Hallowell to prepare an essay.

What changes, if any, can be Introduced into the Management of the Maryland Agricultural College to make it of More Benefit to the Farmers of the State?

The announcement of this question at once awakened considerable animation, and it was evident the convention felt much interest in the subject.

Mr. Edw. Porter Thomas made the point that it was agreed by the committee that the reading should be "*some benefit*," and the chair announced that the discussion could take in either form.

Mr. Wm. Henry Farquhar read from *The Port Tobacco* (*Md.*) *Times*, some extracts from a letter addressed to its editor by Mr. O. N. Bryan, not only well known as an agriculturist, but recognized by the Patrons present as a prominent member of the Grange. [Some portions of this letter were given in our January issue.]

Mr. James S. Hallowell said, that though the institution was in an adjacent county and has been especially favored by the State, he had never heard that it had done anything as yet to benefit our agriculture, or to elevate technical education relating to the practice of that art. There may have been experiments made there with various crops; tests of the numerous fertilizers sold through the State; comparative trials of the several breeds of cattle as to their adaptation for the dairy, for beef, &c.; of sheep for mutton and wool; but if so, he had never known it. This, however, was not conclusive proof that they had not been made, and he suggested that the convention appoint a committee which shall go and examine into the condition and working of the institution, the management of the farm, the garden, the herds and flocks, &c., and report.

Objection was made to this, as the convention could not receive the report of such a committee until it met again next year, and the motion, failing to receive a second, was not put.

Mr. Joseph T. Moore, Master of the State Grange, cautioned prudence in dealing with a subject which was one of great importance to our farmers, especially as the action taken by this convention would exert a great influence in other parts of the State. He had been told that the management of the College had been changed, and that it was in better hands now than for ten years past. He doubted whether the State could do anything, and thought the proper plan was to insist upon the stockholders electing trustees who would more fully carry out the primitive objects of the institution.

Col. Washington Bowie, called upon as a former student of the college, said, from his connection with it in its early days, he had felt much interest in it, and had watched closely its decadence and downfall. He believed the only thing to be done was to change its location to a more promising agricultural section and place it in new hands.

Dr W. E. Magruder made a short and spirited address, comparing the results that ought to have been attained and those which had been achieved by the institution.

Mr. William Miller presented a motion to the effect that the State should withdraw from its participation in the direction and expense of the present corporation.

Mr. Wm Henry Farquhar read a proposed memorial to the Legislature asking it to buy out the private interest, which is represented to be worth but a small sum, and make of the College a State Farm School and Experimental Station, to be placed in charge of a Board of intelligent and educated farmers, who shall have power, if found advisable, to change its site, &c.

Mr. E. J. Hall, President of the Montgomery County Agricultural Society, objected to the convention adopting this memorial. It looked like it originated with the stockholders, who doubtless would be very glad to get rid of their shares, especially if the Legislature could be induced to pay a big price for them.

It was explained, in this connection, that the stockholders had already sold one-half of their interest to the State, and that by various reductions the real value of what remained was very small. A suggestion was made that the memorial should be amended so as to limit the price to be paid for the stock; and providing if the stockholders did not agree to sell at that price the State should sell out its interest and withdraw the appropriations. Other propositions were made, but finally all were withdrawn in favor of the following, which was adopted unanimously:

"*Resolved*, It is the sense of the Farmers' Convention held at Sandy Spring, January 13th, 1876, that as farmers and *tax-payers* we are not satisfied with the past management of the Maryland Agricultural College, the results not being commensurate with the cost, and we therefore respectfully refer the subject of its greater efficiency to the attention of the mass meeting of the citizens of Montgomery, to be held at Rockville on Jannary 20th."

A committee, consisting of Messrs. E. J. Hall, Wm. Henry Farquhar and Henry C. Hallowell, was appointed to present this action to the mass meeting.

The Convention then adjourned.

Summary of Proceedings of the Farmers' Club of Sandy Springs January 13, 1875.

Age of the club, 32 years; weight (?) average attendance through the year 13; smallest number at any meeting, 10; largest the whole, 16. I think the record affords no indication of failing interest. New blood comes in occasionally and helps to keep up the life. I notice more frequent reference to the members coming early in cold weather to the fire; also more minute and particular description of the supper, than in the days when a good corn pone was to be found on the table. Whether this last circumstance shows an increasing interest felt by the members in that part of our monthly exercises, or only an individual proclivity of our excellent secretary, I shall not attempt to determine; but such is the record.

Beginning with the proceedings of the meetings held in this month a year ago, I find naturally the first subject of interest mentioned is the ice pond at the place then visited. The critical capacities of the club were shown as usual in objection to the situation on account of its being too much sheltered, and having springs in the bed. Still stronger objections were made to the location of the cow-house, "with a spring branch running, carrying off the best parts of the manure"—(quoting Burns.) The next question of interest related to the rental value of the land of our members; and it was decided to be worth $3 per acre per annum.

Going on with the questions as they come up (I have not had time to arrange them) we find the Berkshire hog is the general favorite, though some fine specimens of the Poland China are in possession of some of our members; the latter breed has not made its way yet to much extent. Not much has been developed amongst us the past year with regard to liming; most of us would like to be trying it again, there being two who go against lime altogether. A prescription for lice on cattle is said to be potato-water; and it was asked whether oat straw brings lice; this question was well answered by the remark that feeding oat straw without anything else would bring lice.

On the 13th of March it is noted that the snow and ice of the long winter was still remaining; and at the April meeting it is recorded that it was hard to get the members away from the fire; the coolness and drought of the spring cut the hay crop short about one-half. It is stated that more damage to the banks of Hawkins' River was done last winter than in the whole of years preceding.

The French plan of trenching fodder being mentioned, it appeared to be viewed with some surprise and considerable distrust; but as our proceedings record during the thirty-two years the adoption of several new things which were ill received when first brought to our notice, it is, perhaps, as well not to scout with too much ridicule at this strange foreign fashion; our dairymen may see just such trenches opened before a great many years elapse.

The reading over of old minutes is a good cure for old fogyism. In the next improvement suggested we all unite to secure the repeal of the law giving a bounty on crow-head.

Our minutes now begin to show a revival of the interest in Short-horns. Some fine heifers and a very promising young bull with a full pedigree are met with in going rounds.

Apprehensions felt in the spring on account of the *Doryphora decem-lineata* induced our club to diminish by nearly one-half the amount of land planted in potatoes; 49 acres instead of 89 the year before; but the use of Paris green was so effectual against the bug, that the crop was probably not at all diminished; the trouble is not the *Doryphora*, but the low *decimal* figure that stands for the price.

A merciful contrivance of one of our members to take the weight off the horses' necks in running the drill is mentioned with praise; he hasn't patented it.

At this meeting a question was asked: "what must I do with a neighbor's chickens that depredate on me?" Answer: some would persevere with moral suasion, while others talk powder and lead: your secretary would ask: "whether a threat to go and read the Beecher trial to the owners might not prove effectual."

Corn came up so well that many dispensed with replanting. One member had not thinned his corn at all, which received the club's disapprobation; but when the report of product comes in, that member shows 13¼ barrels average yield to the acre, rather the highest on the whole list. But we still think he had better not try that again; this was an extraordinary season in favoring thick planting; the 8 inches of rain in August saved him.

A reliable experiment of Charles Porter shows no difference in the durability of posts, whether split or sawed.

The same member still adheres to his ¼ acre hennery, believing it the best way, on the whole, for farmers to raise chickens.

The question being asked, "Should I put up a 5-railed fence, they answer, "only to keep your own pigs or fowls in."

Rye is much recommended as an early green crop. A member fed 11 head of cattle on the produce of an acre from April 20th till far in June, and it was not near gone; while one cow of the eleven, having some meal in addition to the green rye, gave 12 pounds 9 ounces butter in one week.

In visiting some of the farm-houses, exception was taken to the amount of shrubbery, particularly evergreens, as shutting out the view from the porch and giving a sort of dark look in front. I believe, as people get older, they grow fonder and fonder of plenty of light.

The Marsh Harvester (which carries on the binding with it) had been inspected, and its operation favorably reported on. The Dropper Reaper was not altogether liked. "The Thomas Harrow" was much praised by its owner.

The majority of the members prefer to put manure upon the sod; and a large majority are opposed to spaying pigs.

The value assigned to an ox-cart load of pumpkins varied from $3 down to 0.

Nine members think it pays to raise colts; five do not.

Nov. 6th: four of the members only have ice.

We old men count on getting the plow started by 8 o'clock; how is it with the younger clubs?

All approve of cutting fodder, but none do it.

The total yield of corn of our (present) 15 members is 2,680 barrels, with an average of 10 barrels per acre; last year 8½ barrels.

WM. H. FARQUHAR.

Montgomery Farmers' Club.

The distinguishing feature of the Montgomery Club, is the appointment at each meeting of an essayist to discuss some subject at the next; this, after four years of trial, we pronounce absolutely indispensable, as the reading of the essay always seems at once to awaken thought upon this and all kindred subjects; discussion ensues, and an impetus is given to the meeting which we have occasionally found to be very much wanting when, by some mischance, we have been disappointed in having one. There have been many essays this year of high merit; but the necessity for making this report as brief as possible forbids the mention of more than one *subject*, upon which there were three essays, two volunteers beside the regular appointment; this was, "Considering the moral, mental, social and pecuniary requirements of man, where had a young man of this community better establish himself as a farmer?" The question was elaborately discussed in its various bearings, each of which is surely too important to be neglected, and the unanimous verdict was in favor of remaining at home. It was admitted that there might be places West or South where money could be made faster, but entirely too much at the expense of the intellectual man; for the development of which Sandy Spring affords opportunities which go far to recompense for the additional labor required to gain a livelihood from naturally sterile soil. The writers moreover contended, that if times were hard, the night was at its darkest, and that the bright dawn, followed by the glorious light of day, was yet in store to the man of steady purpose and earnest energy; for Montgomery county, centrally situated as she is, near the large and increasing city of Washington, and where the much-joked about, but at some not distant day, inevitable railroad is finally built within easy reach of the markets of Baltimore, the fourth city in the union, with a climate healthy and invigorating, and a soil which, though poor, is highly susceptible of improvement, and capable of producing fruit and grass and grain; which latter, if they cannot compete in quantity with the Western products, are at least amply sufficient for the production of beef, butter, cheese, milk, pork, sheep, poultry, etc., all of which are profitable, and have the advantage of leaving behind them so much organic manure, which, as every one knows, is our greatest requisite. The development of those industries might, it is thought, one day make us the Herkimer or Chester county of Maryland.

The following are some of the questions of most general interest which are upon the minutes of the past year:

1. Do farms pay 10 per cent. interest on cost as covers for grain and hay? 9, no; 4, yes.

2. How many cows will a farm of 100 acres carry, buying all the grain used? 20.

3. Considering the additional labor, which is the most profitable—dairying or fattening cattle? 10 say dairying; 2, fattening cattle.

4. Does it take more land to feed a cow through the summer or winter? About ¼ more to feed through summer.

5. Can land be improved to the highest extent by feeding what is grown upon it, and returning the manure without the aid of commercial fertilizers? The improvement would be slow, and it would be very questionable whether a living could be made on the margin.

6. Should manure be left in the yard to rot, or hauled upon the land as fast as made? Haul at once.

7. Is there enough plaster for land in the super-phosphate, or should more be applied? There is from two to four hundred lbs. of plaster in each ton of super-phosphate: not enough for the land.

8. Do peaches pay? Yes, if you only get one crop in four years.

9. Does it pay to fertilize corn in the hill? This question gave rise to much discussion, very strong opposite opinions being held. The following experiment was tried and reported by Granville Stab'er as going far to solve the problem: ¼ of an acre not fertilized yielded 2 barrels and 4 bushels ears of corn; ¼ acre fertilized in the hill yielded 2 barrels and 9 bushels ears: a difference per acre of 2 barrels corn, worth $3.50 per brl., $7 per acre. Cost of fertilizer per acre $2, which, deducted from the value of additional corn raised on land fertilized, leaves a balance of $5 profit, without taking into consideration the larger amount of fodder grown on the land where the fertilizer was used; there was also but 3-5 as much short corn on the land fertilized as on that where none was used.

10. Will it pay to plant 15 acres of a 100-acre farm in apple trees? Yes.

11. What is the average corn yield for the past 5 years within 5 miles of S. S.? 5 brls. per acre.

12. What is the average of the Club for the same time? 6½ brls.

13. What kinds of wheat will be sowed this (last) fall? The proportion of Boughton, Fultz and Red, was as 7 : 2 : 1.

14. Will it pay to save seed corn from stalks that bear two ears? The general opinion was, that the best result was to be obtained by making 1 ear on a stalk grow large.

15. Is a dairymen's association a needed institution? Yes.

Before closing this report I wish to say a few words expressive of the benefit that is derived from these farmers' clubs, for, as far as it is possible to see, they are wholly productive of good. All other associations meeting at central places are beneficial from the contact which they give and the opportunities which they afford for an interchange of ideas; but the clubs meeting as they do at each member's farm, and subjecting his operations to the good-humored but close criticism of a dozen or more of his cotemporaries do more to stimulate practical farming than any other species of organization can. Hoping that what is so unexceptionally good may soon become more diffuse, and that this annual meeting may be the convention of many clubs,

I remain, gentlemen, yours respectfully,

C. F. KIRK, *Secretary M. F. C.*

Mr. Gorsuch's Prize Acre of Corn.

TO SAMUEL M. PRICE,

Chairman of the Corn Committee of the Gunpowder Agricultural Club:

Sir:—In pursuance of a resolution of said Club in relation to test corn crops, I respectfully submit to your committee the following report:

The plot of ground selected for the acre contest has an exposure partly southeast and partly southwest. Soil, light loam. Prepared for planting between the 13th and 25th of May. Manured per acre with 6 four-horse loads of stable and yard manure on the sod and plowed down about 9 inches deep, the ground at the same time being partially sub-soiled. After harrowing, it was manured with 12 four-horse loads of yard scrapings, 230 lbs. Domestic Phosphate and 500 lbs. Poudrette per acre; all broad-cast, and harrowed in. On the 28th of May the plot was laid off 3 feet 10 inches wide, crossed 20 inches wide and planted with yellow corn, using 230 lbs. Domestic Phosphate, 180 lbs. Poudrette and 105 lbs. Whitelock's Vegetator per acre in the hill and covered with a corn coverer $15.37 is the total cash cost of the concentrated manures used on the acre. The Domestic Phosphate was applied in the hill on nearly one-half of the acre, on which the corn made no appearance for about two weeks, then came up very sparsely, a hill here and there. It was planted a second time about the middle of June. That manured in the hill with the Poudrette came up well and grew off finely. That with the Vegetator came up rather slowly and was somewhat missing. These were gone over and replanted (the corn worms having cut the corn badly,) at the same time that the other part was planted over. About the sixteenth part of the acre had no manure on of any kind. On this the corn came up well and grew off finely. The corn when gathered was found to be rather heavier than that on any other part of the acre. This portion of the acre had had the drainage from the cow-yard running over it. The corn was worked four times. The first time as soon as the replanting made its appearance with the Woolsey harrow and well hoed. The second time the Davis drag, after which there were two bushels of plaster sown broadcast on it. The third time with the double shovel, and the fourth and last time immediately after with cultivator for the purpose of leveling the ground; these two last can scarcely be considered more than one working. I had intended giving it another working with the Woolsey harrow in about two weeks after the last working, but had to relinquish it on account of the corn being blown down before the proper time to work it. There was not any distinguishable difference in the production of the parts manured in the hill with the different phosphates nor with the Poudrette.

Said plot of ground surveyed under the supervision of your committee contains as per surveyor's certificate, 1 acre, 1 rood and 16 perches; or in other figures 216 perches. Production of said plot of ground with its average per acre, viz: 125 shocks of corn. The fodder of 3 of said shocks of medium size, stripped of the corn and husks, weighed 534 lbs., equal to 178 lbs. per shock. Total weight of fodder, 22,250 lbs., equal to 16,481 lbs. per acre. The husks from the said 3 shocks weighed 65 lbs., equal to 2,708 lbs. from the plot of ground, equal to 2,005 lbs. per acre. Corn produced on said plot of ground of 216 perches, measured by your committee on the 19th of October, 37½ bbls., equal to 27 bbls., 5 bushels and 3¾ pecks per acre, of which there were 24½ bbls. and 3¾ pecks of large corn and 3 bbls. of small corn. Your committee weighed ½ bbl. large corn and ½ bbl. small. The ½ bbl. large corn weighed, net, 189 lbs., equal to 378 lbs. per bbl. The ½ bbl. small corn weighed, net, 172 lbs., equal to 344 lbs. per bbl.

Net weight of 24½ bbls., 3¾ pks. large corn	9,294 lbs.
" " of 3 bbls. small corn	1,032 lbs.
Total net weight of corn from the acre	10,326 lbs.
" " " " fodder " " "	16,481 lbs.
" " " " husks " " "	2,005 lbs.

Total net weight corn, fodder, husks from acre. 28,812 lbs. Equal to 14 tons, 8 cwt. and 12 lbs. per acre, exclusive of waste left on the ground.

My past experience in raising corn, particularly the few last years, has fully confirmed me in the opinion that 30 bbls. may be produced on an acre; and that the average of our corn crops should not be less than 15 bbls. per acre; and to look forward to and aim to accomplish, in the course of a few years, in the average production of our corn crops, from 15 to 20 bbls. per acre. Yours, most respectfully,

T. T. GORSUCH.

Retirement, Nov. 6th, 1875.

Great Yield of Corn.

Mr. W. F. Turnley, of Gravelly Springs, Ala., gives the *Southern Cultivator* the following report of an extraordinary yield of corn achieved by him, and the result of a few years careful selection of seed:

Editors Southern Cultivator:

Yours of 2nd inst., making certain inquiries concerning my corn, is received, and it will give me pleasure to furnish the facts you desire.

The land on which the corn exhibited at the Georgia Macon Fair, was made, is adjacent to my tannery. I have thrown the spent tan upon this lot from 1841 to 1860. On it I have fattened my hogs during that period—it being free from mud in rainy seasons. I also threw thereon the waste lime and hair from my tannery. It was also a camping ground for teamsters, while hauling tan-bark during the summer seasons, after crops were finished.

The first crop planted on this piece of land—only a piece of it being planted—was broom corn, which, to my surprise, was very fine. The next year it was planted in Irish potatoes. The vines grew very rank, but the yield of tubers was very poor. I planted it in corn the next year, and, though we had a drought, the crop was very fine—never firing at all. The next year it was sown in wheat, and made an excellent yield.

The present crop of corn was made as follows: The land was broken up with a turning plough, prepared for irrigation, which, however, proved unnecessary, as there was no lack of seasonable rains. It was marked off three feet each way with a shovel plow, and five to eight grains to the hill dropped about 12th of May. When sufficiently grown it was barred off with a turning plough, hoed and thinned out to three stalks in a hill. In ten days it was ploughed with a turning plough, with mold-board to the corn; but the dirt not hilled up to the corn more than an inch. In two weeks it was ploughed out with the same plough—not running so close to the corn; hoed and suckered again, and laid by.

The seed corn is a variety I have been improving for four years past. When I commenced propagating the corn, the ears had, as is usual, 14 to 18 rows, and would require from 90 to 125 ears to shell a bushel. The second year, under my system of propagation, the corn had 18 to 20 rows to the ear, and 80 to 90 ears would shell a bushel. The third year the corn increased to 20 to 22 rows to the ear, and 70 ears made a bushel. The fourth year—the present—my corn has 22 to 24 rows to the ear, and 60 ears, taken just as they come, shell out a bushel. By picking the ears 40 to 50 will make a bushel. I have a few fine ears that have 32 rows to the ear, which I expect to plant; and I confidently anticipate a yield of seed corn therefrom that will only require 50 ears to the bushel, taken as they grow in the field, with anything like good land and average seasons.

The yield of the acre was *two hundred and twenty-one bushels and seven quarts.* It was measured by a committee of three, appointed by Gravelly Springs Grange, No 500, Gravelly Springs, Lauderdale county, Alabama.

I will add that it has been a specialty with me for four to six years, to examine minutely the finest specimens of corn in various corn-growing States, and I have never yet seen any corn to equal mine.

Correspondence.

Curing Tobacco.

Messrs. Editors American Farmer:

I send you Col. Shelton's statement in relation to curing tobacco leaves, without the stalk, claiming to save, or rather gain, 8 to 10 per cent. in weight by it. Can any of your readers give us any more light?

His points I think are well taken, and I am inclined to think it the cheapest manner of handling tobacco, besides saving much damage to fine leaves for wrappers.

This is the first year of my tobacco raising, and being a Yankee I have been watching every point closely to see if labor cannot be saved, and damage from handling prevented, and before I heard of Col. Shelton's trial, I had determined next year to pick my best leaves first and cure them yellow and mahogany wrappers.

"The proof of the pudding is in the eating," but I will briefly state a plan I had thought of adopting to carry out this idea. To have leaves picked and put in baskets, hauled to the barn and dumped on platforms, one basketful only in a place convenient for the stringer; have sticks shaved three-cornered, fasten a small wire at one end as long as the stick; put the stick in an auger-hole to keep steady; then the stringer puts one-half the leaves on each side of the stick, (alternating every other one,) the wire holds the leaves and the leaves will hold the wire on top of the stick, hang up and yellow and cure to suit.

Fine galvanized wire might in the long run be the cheapeast, but any wire would last many years taken care of. The stripping would be done and the assorting could be easily and rapidly done.

But I think I would make at least two or three sorts as I picked. 1st, all the fine wrapper leaves; 2d, the seconds and lugs. Then, after curing, of course, would have to sort by colors.

My plantation having nothing but log barns on it, I built this last summer a frame barn 48x48 in three sections of 12 rooms each, with 16 feet tier poles,—the two side sections 7 tiers high and two short ones in the roof. In the centre, 7 tiers above the drive-way which runs through from one gable end to the other, so that the tobacco is taken from the wagon and hoisted up at once. Then there are three tiers with adjustable poles for the driveway. I planned it to answer for either a tobacco or a grain and stock barn,—having at 10 and 20 feet permanent joists for floors if needed. W. M. E.

Amherst Co., Va.

The following is the plan of Col. Shelton, formerly of Va., as published in the Raleigh (N. C.) *News:*

I have made many assaults on old-fogyism in my career, but the most important is to tell the tobacco-planter that he has wasted thousands of dollars in curing the useless and cumbrous stalk when he could have done otherwise; to tell him that he only sends the leaf to market, and that all the money which he spends on the stalk is money thrown away; and that he should divide his grist instead of carrying a stone in the other end of the sack. There is one point to which I wish particularly to call his attention. He loses ten *per centum* of the weight of his tobacco by curing it on the stalk; for Nature's GOD has ordained that all vegetation, in dying or drying up, sends its substance back to its original stalk. The corn, the grass, the leaves—everything speaks this truth in lessons not to be misunderstood. Can tobacco be exempted from this law of nature? I have experience on this subject.

One hundred plants of green tobacco weighed two hundred and thirty pounds. One-half of this was cured upon the stalk, and one-half off the stalk; and the naked stalks were also cured. Result:

	lbs.	oz.
That cured off the stalk	12	10
Stalks weighed	6	11
Total weight	19	5
Cured on the stalk	11	11
Stalks weighed	8	00
Total weight	19	11

You will observe that the grand total is just the same, except six ounces; and in this lot cured off the stalk I gained fifteen ounces, or something like eight *per centum*, upon the leaf; whilst the other gains one pound, but that gain is in worthless stalk. Comment is unnecessary.

Col. Shelton cured 2,800 pounds in one barn, using ordinary tobacco sticks with a wire attachment, so that the curing can be done more cheaply—say 50 *per centum*.

Farm Work and Labor in Winter.

Messrs. Editors American Farmer:

No one should be too old to learn or so self-conceited as to think they know as much or more than any one else. A great poet said "knowledge is by experience achieved and perfected by the swift wing of time." I observe that farm help is more abundant than usual, and more of it than usual seeking places. I also find that farmers decline to employ hands until spring. There must be scarcity of money or a necessity of economising in expenditures.

In the winter many things might be done by way of preparing for spring and summer: The live stock should have good attention; fencing material prepared and put in the needed places; wood cut, split and set up so as to be ready cut and dry; material for manure, and when the weather permitted to have it hauled on places intended for spring and summer crops. But to return to the labor subject and not so many being employed in winter. Does the board or keeping the hands bear too heavily against the amount they could do then? or could the question be put in this form: what is it worth to board a hand per month? Perhaps some of the readers of the *Farmer* could enlighten your readers on the subject. Man and beast to be useful must have enough to eat in order to do good and sufficient work. I see it stated in the *Farmer* and other agricultural papers, that we should keep regular accounts like other business people. We should know how much to give for labor and what its board is worth. When we have the knowledge of what things are worth we are enabled to make calculations of the expenses of farming. It is a common saying now-a-days that farming don't pay. Perhaps in many instances it does not. I am unwilling to think that on good land, with good implements, good seeds, a plenty of manure and good fertilizers, one year with another, but that good crops can be made. It is true sometimes there come bad seasons, but are there not many things occurring in all sorts of business to cause back-sets and failures. We can all learn, and when we do know, should put our knowledge into requisition, and not forget the world expects the farmer to furnish the food, and by doing so he makes his money. Let us in the meantime keep each other well posted and prove that knowledge is power. Yours, &c., C.

Jefferson Co., W. Va

The American Farmer and the Progress of Agriculture.

Messrs. Editors American Farmer:

We think you *can* rely upon your *present* subscribers to largely increase your circulation, for we are certain that there is not one among its many subscribers who does not wish *the Old Pioneer and its Editors* success, health and prosperity. Ever since the first *number* has the *Farmer* been coming to me regularly about the first day of every month. I think about its visits, and ride down to the office for it, and sometimes I wonder what I would do, if its editors in some way should forget or overlook me. I certainly should feel lonesome. It is always instructive and entertaining. One thing, Messrs. Editors, I desire particularly to thank you for, is your notices of Experiments in Crop Feeding, and the Application of Fertilizers, by Profs. Stockbridge, Goessman and others. Your editorials and notices of Chemical Manures, Analyses of Crops and Fertilizers, &c., are very interesting, and, to me, form a most valuable feature of your journal. Every farmer should understand something of chemistry to enable him to apply to his soils what they most need to produce *full* crops. He may, and I am convinced *does*, very often apply fertilizers to his land, which produce no visible effect, because it has a supply of them already, and needs others. For instance, lime may be applied to land already well supplied with lime, &c.

Your January No. is at hand, and I read with interest "Chemical Manures and the Wheat Crop," "Small Farms and Thorough Culture," "Report of Gunpowder Club" (the best Agricultural Club I have heard of,) "Work for January," (a private chat with the editors,) "Experiments in Crop Feeding," &c.

The *American Farmer* has done much for agriculture, but much remains to be done by it and the people. Some of the recent statements before the agricultural societies show an improve-

ment in culture and tillage, not even dreamed of a few short years ago.

We need these statements to encourage us onward. What are we to do by and by? is a question often asked now-a-days. How are we to compete with the great West? They can raise everything and ship it cheaper than we, and railroads and canals are multiplying! What are *we* to do? Not sit down and mourn over our fate, not sell our farms and move there too, but stay where we are and work our *brains*. Raise one hundred bushels shelled corn where we formerly raised twenty; two tons of hay where we now grow one; keep ten cows, and keep them well, where we used to half-keep five. We may not be able to do so this year, or next, but begin the good work, and it will not be many years before we can. Industry and economy must be brought to aid us in the fulfilment of our purpose. Who are the men destined to rise in the agricultural world? I answer, those who read and reflect. Now, more than ever has the time come when the farmer must read and think. He may work ever so hard with his hands, but if he work not with his head too, he will find his intelligent neighbor far outstripping him with half the physical labor he exerts.

And those men so wise in their own conceit as to suppose they can learn nothing from a book or paper on farming, will, perhaps, discover their error too late to retrieve it.

H. W. Cosby.

Halifax Co., Va., January 10th, 1876.

Sheep vs. Dogs.

To the Editors of the American Farmer:

As our General Assembly is now in session, is it not well for the farmers to urge upon them the passage of a law for the protection of sheep from the ravages of the hordes of miserable curs that now infest our State. I would suggest the following as a basis for petition: To register every dog before June 1st, 1876, with a Justice of the Peace of each district in the counties. To pay one dollar for every male, and two dollars for every female dog. Have a list of all registered dogs posted in every district. To put a leather or metalic collar on, with its number corresponding with the register. All dogs without such collar a nuisance. Lawful for *any person* and made the duty of all police officers, constables, &c., to kill any dog not registered. Lawful to kill any dog worrying our sheep or other domestic animal, and the owner of such dog to pay such damages that have occurred from worrying or killing of sheep or other domestic animals. Fine any officer, for neglecting to enforce the law, ten dollars. All fines accruing from said tax, (after allowing to each Justice of the Peace for registering each dog ten cents, and to each officer for the collection of such tax and the killing of all unregistered dogs, the sum of twenty cents each,) to be paid to the school fund of the counties. There is not a State in the Union better adapted to wool-growing than Maryland, but all are afraid to touch sheep, as there is no protection for them. Let the farmers rise in their might and flood our Legislature with petitions; they will certainly attend to us then. There is hardly a week but we see an account of sheep killed by dogs. There has been in the last month at least 100 to 150 killed and badly bitten in our county alone. If we cannot get legislation upon this matter, what shall we do? I will tell you what I will do: kill every dog that puts his foot on my farm without his owner. I will protect my sheep if I have to make a few enemies by it. J. W. D.

Newmarket, Frederick Co., Md., Jan. 17th, 1876.

Potatoes at the Agricultural College.

Messrs. Editors American Farmer:

Dear Sirs:—Is it astonishing that fault should be found with the management of the Agricultural College when we find in the report of its President the following sentence: "with the exception of potatoes, which were destroyed by the bug?" I do not believe that half a dozen farmers in Prince George's county would say that, certainly not in this vicinity, as the potato crop was a good one. Not that there were no bugs, but that they were watched and fought as long as there were any to fight. While not claiming the crop either as an extraordinary one or as being any better managed than many of my neighbors, I give you the yield of one and three-quarter acres of potatoes. I planted 3½ bushels White Peach Blows, and 9 bushels of Thorburn's Late Rose. The yield was as follows: 85 bushels White Peach Blows; 250 bushels Thorburn's Late Rose; 335 bushels for the acre and three-quarters. The bugs were plenty and vigorous, but Paris green was an enemy they could not resist. It seems to me that any sort of management would have saved the potatoes at the Agricultural College farm, which ought to be a model for the rest of us to go by.

I notice to-day that the maples are in bloom. Hope we will not have warm weather enough to kill fruit buds. Yours truly,

Chas. E. Coffin.

Muirkirk, Prince George's Co., Jan. 21st, 1876.

Wire Fences.

Messrs. Editors American Farmer:

Your valuable monthly is taken by my son, and I greatly enjoy the reading of it. There is one very important question, in my opinion, that needs discussion, particularly where timber is scarce, and where timber fences along railroads are in danger of being burned; a great deal of which has been done in this county. I have been advised to put up wire fences, and, upon reflecting on the matter, have almost determined to try it, if you or any of your patrons who have had experience in the matter recommend it, and be so kind as to shed light on the proper materials, as well as the proper construction of it, such as the size of the wire (number,) the proper distance of the posts from each other, the number of strands required to turn cattle and horses, and *spaces*, beginning at the surface. And also the number of strands to make a fence to turn hogs, giving the *spaces* also.

One great objection urged here to wire fencing, is the danger of stock running against it. Could not that be obviated in a great measure by ditching on both sides, say 15 or 18 inches deep,

placing the earth in a ridge, which would serve as part of the fence, and thereby save wire, and render it much more difficult to be jumped. Locust posts here are worth about 25 cents each, and are not safe from fire. I have been thinking of iron set in blocks of rock; old buggy tire would answer the purpose very well, and it would not cost much, and only require being made sound for 6 or 8 inches at one end and a hole punched for each strand. Your view and advice, together with the same of your experienced patrons, would be very acceptable to a large class of your readers.

Yours respectfully, A FARMER
WHO WAS BURNT OUT DURING THE WAR.
Charlestown, Jefferson Co., W. Va., Dec. 29, '75.

[Our correspondent will find on page 137 of the *American Farmer* for 1874 a description of a serviceable fence of this kind. We have ourselves tried the rollers there recommended for tightening the fence, and find them effective. We should be glad to hear from any other of our readers who have any experience with these fences, which usually are not regarded with much favor.—EDS.]

Our French Letter.

Messrs. Editors American Farmer:

Fermented compared with Cooked Food.

The adoption of fermented instead of cooked food for cattle feeding, is not only making much way in France, but also in Germany; perhaps the chief cause of the change is to be found in the fuel economized. It was a Bohemian agriculturist, M. André, who in 1830 first tried the plan; in 1836, Dr Schneitzer, of Saxony, exposed its advantages; since, M. Moel, professor of agriculture in this city, has become the most prominent advocate of fermented food. Instead of chopped straw, he employs colza pods, in alternate layers with turnips and beet; the mass being well-trodden in a barrel, having a capacity of 330 gallons, each layer is well sprinkled with water containing bruised oil or colza cake and a little salt; the mass is left to ferment for 72 hours, and is then given to the animals for their noon feed.

Maize and other Forage Crops.

The climate being equal, Continental farmers are divided into two camps, respecting the cultivation of maize for fodder green and pressed, and clover, beets, &c. Maize requires good manuring, and, when so treated, succeeds well on freshly reclaimed heath land; clover, by its dead roots, enriches the soil. In a dry summer, beet is not so certain a crop as maize, and opinion is divided as to their comparative yield. M. d'Esterno announces, that he can profitably feed hogs on preserved maize, till within the three months requisite to fatten them, when of course they must receive farinaceous food. The forage must not be given in a raw state, but cooked, and chopped in lengths of one or two inches. The pig likes, as a rule, to be spared mastication as much as possible. In some parts of France, cooked grass, nettles, thistles, &c., are given to pigs with one part of potatoes. Beet is dear, costing fr. 13 per ton, while preserved chopped maize is one-half less. M. d'Esterno purchased two pigs on the 27th September last, for fr. 172, and sold them fattened, the 12th November following, for fr. 532, difference fr. 63, from which has to be deducted their keep, valued at fr. 11,—thus leaving a net profit of fr. 52, for 44 days feeding. For the first 22 days he gave them for ration, 27 lbs. of cooked maize fodder, 1¼ lbs. of mill refuse, and half a pound of potatoes; the remaining 22 days they were fed on 27 lbs. of maize, 9 lbs. of potatoes, and 1¼ lbs. of buckwheat, daily.

Lands Naturally Fertile.

M. Shénard draws attention to the natural fertility of soils. There are forests where manure is never distributed, and yet since centuries they show no diminution in richness, although the timber be regularly felled, and sold every 30 years; this timber carries off nitrogen. The vineyard of Clos Vougeat, celebrated since nearly one thousand years, receives not more than quarter of a ton of manure per acre annually, yet it yields nearly four times that weight of fruit, in addition to the shoots pruned for firewood; the soil shows no falling away in fertility.

M. Truchat finds the mountain pasture lands of Auvergne, which are never manured, to be richer in nitrogen than the arable soils of Limagne, that are regularly enriched. In these cases, from whence comes the supply of nitrogen? M. Dehèrain explains the matter thus: all the soils in question are rich in humus, the accumulation of years, and this carbonaceous matter in decomposing, absorbs the oxygen of the air that has penetrated into the soil—as is the case in an ordinary manure heap—and the nitrogen thus liberated unites with the hydrogen disengaged from the decaying organic matter, and forms ammonia. Perhaps the explanation is as good as our present state of science can afford.

Certain meadows in Sleswig-Holstein are remarkable for producing singular results on cattle, as compared with other pasture lands in the vicinity. The animals though in excellent health remain diminutive, displaying at the same time a predisposition to fatten rapidly; the cereals cultivated have a tendency to be laid, and the grain is not rich in flour. An analysis was made of the soil, and of the grain and hay produced, and showed a deficiency of lime, magnesia, potash, and phosphoric acid. The inadequacy, especially of lime and magnesia in the soil, and consequently in the pasturage, did not furnish the necessary ingredients to build the skeleton—thus arresting the growth of the animals, and provoking their premature fattening.

M. Ville's Theory.

M. Georges Ville is well known for his advocacy of mineral manures, as being in themselves sufficient to maintain the fertility of the soil. The crop draws from the land certain salts, and to return these by a mineral manure, is all in M. Ville's opinion that is required. Thus farm-yard manure, and consequently, the rearing of cattle, are something like superfluous ends. M. Ville has just published a work wherein he lays down, that the formation of animal and vegetable substances is subjected to the same laws. All this

is neither very new nor very accurate. More important still, the consequences to be deduced do not seem to be of any practical importance. We may differ about the best and cheapest manner for "feeding" crops, but the food for animals cannot be affected by any abstract law.

Management of Manure.

At Lozère, in the mountainous district of the Cevennes, straw is very scarce, and the animals repose on layers of earth, their feeding troughs being movable, so as to be raised as the heap of earth increases. It is suggested that this plan be given up in favor of the Swiss method, where the cattle also have no bedding, the solid and liquid excrements being run into tanks, from whence, after fermentation, it is distributed by piping or barrels over the meadows. In the North of Holland, the urine of the cow-shed is gathered in small boats, and when these are full, are towed along the canals to discharge their contents on the adjoining pasturages.

Roquefort Cheese.

In the district of Lozère, Sheep are reared for their milk; the Pyrennean breed is excellent in this respect, the ewe yielding after nourishing her lamb, from 50 to 100 quarts of milk, which produces from 20 to 30 lbs. of cheese, and even excellent butter. The cheese is known as Roquefort—the French Stilton, and is of world-wide notoriety—the total annual produce being estimated at 3,000 tons. The whey is given to pigs, which reject it at first, in consequence of its putridity; afterwards they take to it and become fat. The vexed question of horse-breeding in that mountainous district is much studied; farmers prefer crossing native races with Arab, instead of English blood; the result producing animals better able to withstand severe work.

Hop Growing in Bavaria.

Spalt, in Bavaria, is the classic home of hop culture on the Continent; there hop plantations have the appearance of veritable forests; the trenches separating the rows of plants are very wide; the soil is tilled to the depth of three feet, and the plantations are ever on inclined ground, the ridges being perpendicular to the slope; the soil can thus be more easily freshened; in the bottom of the trenches, at distances of fifteen feet, are holes, a spade's blade in depth, acting as so many wells for the rain water. The quick kind of hop is preferred, being more productive than the slow variety. Each knoll contains three plants, and the poles are 24 feet in length, the stem being tied to them at mid-height, by reeds. Wire is not employed as a substitute for poles; hops thus reared are neither of good quality nor remarkable in quantity. A kind of fork-knife combs the pole, the cones being separated from the stems ulteriorly. Rapidity is essential in the harvesting. Milch cows relish the leaves, and the stems are either given green, or dried, and cut into lengths of one or two inches; they are never burned.

Wool imported from Australia and South America is largely mixed with vegetable *debris*, which is no small drawback to its industrial employment. Various processes have been tried to separate this vegetable from the animal matter by chemical means. Messrs. Barral and Salvat, after a series of experiments with sixty different substances, find acid and other solutions effective in destroying the woody part of the vegetable substance, provided the wool after steeping be well dried, then placed for a time in a stove at a certain temperature.

The discussion on the subject of the formation of sugar in beet continues to be warm, but is very far from having a satisfactory conclusion. The great authority, Claude Bernard, is of opinion, the sugar is formed by the root; Messrs. Duchartre and Viollette believe it takes place by the leaves, owing to the conversion of the starch in the leaves into saccharine matter; the root being merely the depot for the sugar thus formed, to nourish the seed stem the following year, just as the tubercle of the potato has a store of starch to feed its shoots of the succeeding season.

There is still nothing new to record respecting the phylloxera; the vine bug has become a greater object of interested study. Some experimenters state, one dose of sulphuret of carbon is not sufficient, and all seem to agree to prohibit the importation of vine stocks from affected to healthy vineyards. F. C.

Paris, Dec. 25th, 1875.

A Retrospect of some Theories in Agriculture.

Messrs. Editors American Farmer:

As my "interest" in agriculture and "fertilizers" is now *purely* that of retrospect, my views and experience may be peculiarly valuable to the farmer and those who cater to *his* advantage. Agricultural periodicals are usually too much dependent on manufacturers, and essays which are not written directly or indirectly in *their* interest, get the "bar sinister," or are refused publication, and thus the best essays are omitted, and discouragement results to contributors of *actual* experience, while the hobbies of those who should only contribute in cash are inflicted upon the public in most of the journals. Nevertheless the editor is the accepted judge, and every novice should be encouraged to write, as his erroneous views of nature and the false impressions derived by more "practical men" as to science may be thus corrected—Prov. xxv, 16. Formerly, essays were "reviewed" apparently in order to elicit from the writer other or clearer views, and few are even thus noticed. Moreover, the briefest extracts from the choicest gems in the science of agriculture are displaced by the merest "twaddle" or "Sunday reading," while religious periodicals assume an "agricultural department." *Now*, as men advance in age, they are suspected of cynicism, whether they deserve it, or merely give the truth without the usual dilution. Those who excel in rhetoric, and merely please the fancy, are not the best writers *in agriculture*. Even the best medical periodicals are often occupied for months with expert writers, who fill their pages with "cases" and even plates! in illustration, which are "fabricated." A faithful and conscientious experimenter is utterly discouraged when he thus beholds the apparent results of months of patient research credited to others who do not occupy an hour in its "fabrication."

A review of some of the errors in my own essays during the last quarter of this century in

The American Farmer may interest some who encouraged their production, as both personal experience and the observation of much that has been contributed by others since (in the *Prairie Farmer*, *Practical Farmer* and other periodicals to which I have contributed) reduplicate sevenfold the value of such a retrospect. The following may indicate *some* of the subjects which seem to deserve as much space in *The American Farmer* in 1876 as the above now occupies in this number:

a. Errors with regard to the *permanent* improvement of land by artificial or concentrated "fertilizers."
b. Errors with regard to the use of lime.
c. Errors with regard to phosphates.
d. Errors as to the relative *value* of ammonia.
e. Errors in estimating the *effects* of potash.
f. Errors as to the *value* of soil analysis.
g. Errors in estimating the effect of manure.

A brief article under each of these heads, and strictly confined to it, may be as well worth one perusal as the "foreign" items of news which are usually tolerated in agricultural literature, and are no longer confined to the daily or weekly sheets and "pseudo" journals of agriculture.

DAVID STEWART, M. D.
Port Penn, Del., December, 1875.

[We shall be glad to have, in the condensed shape our old friend and correspondent proposes, the corrections of his views on the important subjects his experience leads him to believe he was mistaken in. We are always willing to have errors corrected; and the narration of failures is often as important as the development of new truths. But we must utter a word of caution to all our correspondents. Do not be too scientific. What is so simple to proficients, is too often unintelligible to readers.—*Eds. A. F.*]

Gunpowder Farmers' Club.

Messrs. Editors American Farmer:

The last meeting of the Gunpowder Agricultural Club was held Jan. 8th, 1876, at the residence of John D. Matthews. S. M. Price presided as foreman.

On the round of inspection some members discovered a very decided contrast between different portions of a wheat field. Being asked for an explanation, our host stated that where the grain stood so well, Whitelock's Vegetator had been applied to wheat succeeded on corn ground a year ago last fall. He had used 300 lbs. per acre. Having applied the fertilizer to a portion of the field, he had, at Mr. Whitelock's instigation, discontinued the further application,—Mr. W. representing that the effects would be lost as the land had been but recently limed. The result, however, was entirely favorable. On the fertilized portion the yield was 15 bushels per acre, while on the adjoining unfertilized portion it was quite small. This fall, in seeding to wheat, 200 lbs. Whitelock's Vegetator had been applied through the drill over the entire field, with the contrast referred to above notably apparent.

The manner in which a sod, lately broken up for corn, was plowed, was sharply criticised as careless and rough.

A new wagon running-gears with thimble spindles, was shown and warmly commended as light, strong and easy of draft. A member, however, stated that the farm wagons of Western manufacture sold by Linton & Lamott, of Baltimore, possess every advantage claimed for the one shown, in addition to being 25 per cent. cheaper.

At the barn, our host led us under a shed where he is composting his hen manure with manure from the horse stable—the compost not to lie long. The sense of the Club in regard to the plan was called for, but not generaliy expressed. A member thought the plan might do if plenty of dry earth as an absorbent were used.

The hen house, which was found to be a pattern of scrupulous cleanliness, bespeaks in its structure and arrangement the practical and thorough-going ideas of the hostess.

On reorganizing, after the stroll, the attention of the Club was mainly occupied by the routine of business incident to the annual meeting. After this had been disposed of, S. M. Price, chairman of the prize-corn-acre committee, presented to Jas. Bosley on behalf of the Club a handsome silver cup which had been awarded him for the largest yield of corn produced on five acres by any competing member of the Club. Mr. P. made the presentation in a neat and appropriate address, to which Mr. B. happily responded.

To T. T. Gorsuch, who had won the prize for the largest yield grown on a single acre, a silver snuff-box had been awarded. As Mr. G. could not be present to receive the box in person, it was entrusted to a member to be delivered to him.

Both premiums were embellished with significant inscriptions.

These ceremonies over, as the usual hour of adjournment had not yet arrived, the order of the occasion was taken up.

The foreman read an original essay on the subject of eradicating weeds. It was replete with practical thoughts and valuable suggestions. The author considers the ox-eyed daisy, or "Carolina pink" as it is called here, the most vexatious of all weeds, and the most difficult of eradication.

In the comments which followed the reading of the essay, several members considered the labor and time lost which is spent in warring against the pest. Mr. Price said they had broken it up on a field they had purchased by sowing peas after corn, and plowing under—peas were very thick.

I. M. Price had brought the daisy on his farm in timothy seed; he persevered in keeping it from going to seed, and got rid of it. Sodom apple he finds more troublesome.

Jno. D. Matthews, referring to the existence of the daisy on his farm, said that when the farm came under his management the daisy had complete possession of part of it. His efforts to destroy it were futile. In time it disappeared of itself, so that now there is little of it to be found where it had once been luxuriant.

The question was asked whether to fallow and stir weekly with the Thomas harrow would not prove a sure means of extirpation, and answered in the affirmative.

After some further brief exercises, club adjourned to meet Feb. 5th, at the residence of N. R. Miles. T. G.

Baltimore Co., January 19, 1876.

Report of Joseph Bosley's Premium Five Acres.

The land laid out for the premium acres was in corn the year before. It was now used with horse-stable manure and plowed to the depth of 12 to 14 inches. Thirty bus. of lime per acre were applied in the spring, and eight to ten loads of scraping manure, (per acre) both on the surface after ploughing. Ground was well-harrowed and laid off both ways. Planted May 19; dropped by hand. Turner's Excelsior and plaster, in equal quantities mixed, were applied at the rate of 300 lbs. per acre. The ground was rolled after planting. The first working was with the smoothing harrow; next with the cultivator once in a row. It was plowed next, the narrow way with the single shovel, once in a row. The next working was the same way with wider single-shovels; then with double shovels twice in a row.

The lot laid off for one acre contained 8,352 hills. The remaining acres contained an average of 7,000 per acre. Sowed 100 lbs. of plaster per acre when the corn was shooting.

[The report of Mr. Gorsuch's prize acre will be found on page 49.]

On Draining Land.

Messrs. Editors American Farmer:

We have with pleasure read Mr. Croft's article on drainage. It is a subject which ought to be agitated and constantly kept before the eyes of our farmers. *No successful farming without drainage!*

In one respect, meanwhile, Mr. C. is mistaken. He says, "always remember to let your drains be made in the same direction as the water runs off the surface." On the contrary, always, if practicable, cross the natural slope in an obtuse angle, or sloping. The reasons are so very simple that Mr. C. will readily acknowledge them when brought to his notice.

It is well known that water will seek the most direct route down a decline, provided not hindered by insurmountable obstructions; consequently, if the drains are laid, following the natural fall of the land, there will be a space in the middle between every two drains will not be benefited by the drains.

Per contrary: if the drains are laid crossing the natural slope, in an obtuse angle, the water running down the decline of the land, is bound to strike the drain and thus be carried off,—not having to make its way further than from one drain to the next.

The same principle holds good in surface drainage. L. A. HANSEN.

Mississippi.

Agricultural Calendar.

Work for the Month—February.

The Winter season, up to the time this number is prepared for the press, has been so mild that an unusual portion of Spring work ought to be in a forward state; but, as a few weeks only will intervene before active operations begin in earnest, it will not be out of place to again urge, as we have so often done heretofore, that no reader of *The American Farmer* should undertake to do more than he can expect *to do well.*

Manure-Making.—Manure is truly the back-bone of our farming: the manure heap "the farmer's savings bank." The accumulation and saving of all materials which will increase the size and the efficacy of that heap ought to be a duty never intermitted. The loss by allowing manure to lie exposed to sun and rain and wind; by permitting a stream insignificant in volume to wash away the best of its constituents, the careless farmer does not count. Yet careful tests show that manure, its valuable constituents volatilized and borne off on every passing wind, is not worth one-fourth of that protected from the weather. To cover the barn-yard would be in many cases impracticable, but the receptacle of the urine and dung can be so dished that the liquor cannot run off; abundant absorbents can be used; the wash by surface water prevented, and the escape of ammonia lessened by the occasional dusting over the pile of plaster. To increase the quantity look to it that all the waste substances on the farm and in the garden are here utilized. Materials may be found in the fence-corners and head-lands, leaves from the woods, scrapings of roads, mud from the marsh, the offal from the house; the chamber slops and soap-suds; ashes from the kitchen, an occasional dead animal, and many other similar substances, too apt to go to waste and become nuisances instead of adding to the contents of the compost heaps. Well mixed with rich earth, alternating with occasional layers of stable-manure, and all wetted with such liquids as may be attainable, these sources of supply would largely supplement the quota of manure furnished from the horse and cow stables, and make still more efficient the application of such mineral fertilizers as may be applied.

Sowing Clover.—The best plan is to sow on the snow, when it may be equally distributed, and the melting of the snow carries the seed down into the crevices left in the soil by the frost. When not so sown it is best to wait until the frost is out of the ground, then sow, lightly harrow (the Thomas smoothing harrow being an admirable implement for this purpose,) and roll. Both the operations of harrowing and rolling will be advantageous to the grain, the first acting as a cultivation and the pressure of the roller causing any plants upheaved by frost to take root again. When sown alone, on most soils, 12 lbs. of clover seed is about the

right quantity to the acre. The use of *Orchard Grass* is becoming very extended now, however, and, when sown with clover, may be sown at the rate of one bushel of the seed and 12 lbs. of clover to the acre. The two should be sown separately, and it is preferable to wait until the frost is out of the ground. The seeds of orchard grass are light, and the best plan is to sow the clover seed first, and afterwards the orchard grass, dividing the latter and sowing in two directions, crosswise. A light harrowing and a good rolling are advisable, as recommended for clover alone on grain fields.

In sowing *orchard grass* alone, thick seeding is a necessity. Two bushels to the acre is not too much to cover the ground and prevent the formation of separated tufts. The amount of forage furnished by this grass, its earliness and its long continuance, its ability to withstand droughts, its nutritiousness, all combine to make it one of our most prized forage plants.

Lucerne.—Time only brings fresh evidence of the value of this plant, and little by little we believe it is slowly but, at last, surely making its way. It is not a plant for slip-shod cultivators. It needs rich land, clean land; but for all the pains and nourishment given it, it yields abundant returns. It is better, to avoid the danger of its being overrun by weeds, to be sown in drills, so that it may be cultivated; but some put it in good land with oats. Sown broadcast about 20 lbs. to the acre is required; in drills something less, say 12 to 15 lbs.

Corn Ground.—Light soils resting on clay sub-soils may be improved by putting the plow an inch or two deeper and thus by gradually mixing the two qualities a more loamy soil will be secured. This is best done in Winter, and if a light dressing of lime is applied the advantage will be soon apparent. If lands so treated be cross-plowed more shallowly in Spring and harrowed thoroughly, the increased productiveness will show the soundness of the proceeding.

For corn, which is a voracious feeder, an abundance of food will be required. With sufficient supplies of pabulum in the soil, (and some of it may be rather crude compared with what most crops need,) and with good culture, there is no trouble in making a crop, in even unfavorable seasons. See elsewhere the reports of the processes of Messrs. Gorsuch and Bosley, of the Gunpowder Club.

Oats.—Though too early to get this crop in, preparations may be made for it, and we again bear our testimony to the utter uselessness of expecting a good crop from poor land, scantily manured and imperfectly prepared. This crop, as much as any other, needs good treatment, and pays for it.

Tobacco Beds.—If not already done, attend to the careful preparation of these. Brush for burning may be gotten together and the ground made ready, so that it may be raked and dug as soon as dry enough. The earlier the seed may be sown the better generally.

Live Stock.—Everything said last month applies with still greater force to this and the next. Milk cows require careful attention and liberal feed; and in-calf heifers and cows need warm and comfortable quarters. Sheep should have shelters against storms. This is especially necessary for ewes about yeaning. For them too, now is the time for feeding ruta-bagas if you are fortunate enough to have them. Hogs ought to be fed regularly, kept supplied with pure water, and have constantly before them rotten wood, ashes, charcoal, &c. An Illinois farmer feeds from 300 to 500 hogs a year in a 10-acre lot. His hogs are always healthy, but he attributes it partly to the pure water furnished them to drink, and partly to keeping constantly within easy reach, a trough filled with a mixture of equal parts of hard-wood ashes, common salt and flower of sulphur. Of this mixture the hogs eat more or less daily, and it is observed that when eating most corn and putting on flesh fastest, the compound in the trough disappears most rapidly.

Live Stock.

Poland China and Essex Hogs.

Messrs. Editors American Farmer:

I give my experience in raising the above-named breed of hogs to my brother farmers, hoping they may profit by my experiment.

I bred an old-field sow to an Essex boar; also one to a Poland China boar. These sows with their pigs were kept in the same pasture, fed together, and fattened in the same pen. I killed them all at the same time. The hogs were eleven months old when killed. The Poland China weighed two hundred and twenty; the Essex weighed one hundred and sixty; I must say these hogs were badly cared for, until put up to fatten, as my attention and best pastures were given to my thorough-bred hogs.

I put these common sows to my blooded boars simply as an experiment. The hogs I raise for pork are half Poland China and half Essex. I never fail to make spring pigs weigh from 200 to 250 by the first of December. I think the cross of the Poland China and Essex the very best hog the farmer can raise for pork. The Poland China being a long, large-framed hog; the Essex a close compact hog. I am certain that this cross gives the greatest weight of pork, for the food they consume, of any I have ever tried. But for crossing on the common sow, I much prefer the Poland China to the Essex, having tried both.

Z. C. DANIEL.

Spottsylvania Co., Va.

The Holstein Cattle.

Messrs. Editors:

In the November number of *The Farmer* I notice an article under the above heading.

Allow me to make a few remarks. You, like the multitude of our farmers, appear to be under the impression that the Holstein cattle came from North Holland and Friesland. This is decidedly a mistake, although both races originate from the same stock, viz: the Holland cattle. As early as the ninth century Dutch settlers were induced by Bishop Anscharius to settle in Holstein, and many brought with them their Holstein cattle.

Pure and distinct breeding, in a different climate and other totally different local circumstances has, in a space of time reaching over 1,000 years, made the Holstein cattle a distinct race, the same as for instance the Short-horns, which also originate from Holland, having been brought to England by colonists called to that country by William Rufus in 1087.

The prevailing color of Dutch cattle is black and white; of Holstein, red and red and white. At some other time I may give you some information on other distinct cattle races in Europe, little known here and some of which would be worth to import. We want a race that will develop its good qualities without too heavy an expense in feeding, and that will thrive on moderate good pastures.

The Holland and Dutch want plenty and good food, otherwise they do not pay, and we in our section of the United States are not always able to provide such an amount.

L. A. HANSEN.

Bay St. Louis, Mississippi.

Winter Management and Food for Sheep.

Editors of the American Farmer:

The flockmaster should first have Merinos; at least he should have enough of them to grade up the other portions of his flock to a good standard. He should have a roomy stable furnished with racks and troughs; good hay, well secured from the storms; pure water should be convenient and a garner well supplied with corn, oats and bran mixed ¼ of each; his fields should be in reach, with such access that the sheep will not be annoyed with other animals. The stables should be on a dry place, or otherwise the land drained so as to make it dry: for sheep should not have to pass through wet places to and from the stable.

Between 3 and 4 o'clock P. M. the sheep should come up and find hay placed in the rack, and one peck of the mixed feed put in the troughs, allowing thirty sheep to each stable. After sun-up the sheep should be turned out to pasture if the weather will admit; if winter or rain prevents turning out, then feed as on the evening previous. Remember the amount of hay given at the last feed, and give more or less as you have found that they have eaten all or only a part of the last. At the same time, as on the evening previous, feed as you did then. The morning, after sun-up, again feed, or turn out as before. Watch closely the amount of hay they eat, and in a few days you can determine to a handful how much they will eat. Always remove any that is left. Where the feeder is careless, let him always give too much, and remove the leaving for the cattle or horses.

If, during the day, a rain is coming up, run the sheep in before getting wet. Keep the stables well littered with straw, leaves, weeds and dirt, from the corners and waste places. Lime or plaster, sprinkled over the stable every few days, is advantageous both to the sheep and the manure, and, in a well-managed stable, this manure is an item of great value. It will increase the fertility of the farm. If your hay is not good, then feed more of it, and let them pick over it, and remove the balance. Strong, vigorous sheep can do with less grain, although not advisable but for a flock not thriving. There is policy in tempting their appetites, and, when essential, increase their feed of grain. All weak sheep should be fed twice each day. Sheep like to have time to eat their supper, and retire early; they are late risers, and like to sleep in the morning; hence no feeding after sun-down or sun-up. The horse is ready for his breakfast before day. Cattle usually rise with the sun; sheep after it.

Salt often, but little at a time. Water every day, and litter twice each day. Use up all the bedding material that you can, and observe the grand results thereof.

We are all too apt to keep too many sheep, and to feed too sparingly. The latter is poor economy, and the former is a fatal mistake. When feeding heavy, men often begin to count the cost. Under the starvation and overstocking system they can count an unpleasant cost in light fleeces and carcasses, and premature deaths; and also in loss of lambs, dropped by a feeble ewe, that casts one lingering look at the youngster, and then seems to think of her feeble frame and hard master, and she goes away from it thinking of self-preservation.

JOHN S. GOE.

Brownsville, Pa.

[This letter will answer the inquiry of our correspondent in Frederick Co., Md.]

The Dairy.

The Dairy Interest in the United States.

From a review of the Cheese market, by the N. Y. *Grocer*, for the past six years, 1870 to 1875, we find that the receipts at the port of New York in the latter year, were 2,215,000 boxes, or 623,000 boxes more than in 1870, and 131,000 boxes more than in 1874. The exports from the whole country in 1874 amounted to 88,315,565 pounds of cheese, worth $11,878,995, or about 13½ cents a pound; of this amount New York exported $11,624,406 worth, leaving only $274,589 for all other ports. The same year we exported 3,620,853 lbs. of Butter, worth $1,092,381, or a fraction over 30 cents per pound.

The following named States produced 10,000,000 lbs. or more of Butter in the years given, viz:

	1870.	1860.
Illinois	36,063,405	28,032,551
Indiana	22,915,385	18,306,651
Iowa	27,512,179	11,953,666
Kentucky	11,874,978	11,716,609
Maine	11,636,482	11,687,781
Michigan	24,400,185	15,508,482
Missouri	14,455,825	12,704,837
New York	107,147,526	103,097,280
Ohio	50,260,372	48,543,162
Pennsylvania	60,834,644	58,653,311
Vermont	17,844,396	15,900,359
Wisconsin	22,473,036	13,611,328
Total	407,438,413	349,731,014

Twelve States, or one-third, not including the Territories, produced four-fifths of the butter. New York leads in butter as well as in cheese; about one-fifth of our product of butter is her's. But little butter is made in the Southern States. The most southerly of the principal butter-producing States named in the above table is Ken-

tucky, which produces scarcely any cheese, there being at the present time, as we were recently informed, but one factory running in the State. All the States that belonged to the late Confederacy have fallen off in their production of butter —Virginia from 13,464,722 in 1860 to 6,979,269 pounds in 1870; Tennessee from 10,017,787 to 9,571,069. Others have fallen off in like manner, probably because other crops have been found more profitable. A like decrease in the production of butter is observable in several of the Northern States, mainly, we presume, because they have turned their attention to the production of cheese, as is the case with Massachusetts, which decreased the amount of her butter crop from 8,297,836 pounds in 1860 to 6,550,161 pounds in 1870, while she increased her cheese crop from 1,885,466 to 2,070,238 pounds private dairy and 2,245,873 pounds factory in same time.

These statistics are important, showing in the first place the immensity of the business, in some sections, and in the second, the deterioration which has taken place in the Southern States; Virginia in 1870 being put down at about one-half to what it had reached in the preceding decade.

At the meeting of the New York Dairymen's Association held in December, a very interesting discussion was held, in which the President, X. A. Willard, Esq., made the remark, that when he contrasted the difficulties that beset the Dairymen of the early days of the business when he first commenced making his own cheese, with the flood of light which now illumines his path, the slough from which we have emerged seems infinitely deep and dark. He likewise alluded to the fact that in England, the plan adopted in this country of holding conventions is about being inaugurated, at which papers are to be read and discussions had upon them, evidently the better to enable them to compete with the United States. "You will thus see (adds Mr. W.) that our American associations are not only helping America but Europe."

The price for 1875 of cheese was not satisfactory, the reason assigned for which is, that farmers permit the annual product of their herd to run too low; the average factory returns will scarcely show an annual yield of 400 lbs. per cow, and in a great many cases will not go much above 300 lbs., whilst it ought to be, Mr. Willard says, at least 560 or 600 lbs., and 600 lbs. of cheese at 10 cents per lb. amounts to the same as 400 lbs. at 15 cents, (the price the last year;) 600 lbs. to to the cow at this year's rate, would have yielded a very handsome rate. It makes a very great difference in the profits of dairying whether a cow yields 400 or 600 lbs., because the gain above a certain point (which must be placed to the account of expenses) can be credited to clean profit. The 200 lbs. extra then represents actual savings, and is like so much money placed to your credit in bank.

Mr. Willard on the philosophy of raising cream from milk set in ice, in the Butter dairy, makes the following statement:

"Swedish butter has acquired a high reputation in England, and has sold for comparatively high prices, often outselling all other sorts in the London markets. The question then is whether the plan of setting milk in ice water and reducing it to 35 or 36° Fahr., is not an advantage.

"That cream rises rapidly when milk is treated with ice water on the Swedish system is a fact beyond question, and it has been claimed by the Swedish experimenters that more butter can be obtained in this way than by the usual process of setting milk. The philosophy of cream raising upon milk reduced to a low temperature has been explained by Fleischman, who has made the physical properties of milk the subject of study. According to this scientist, the specific heat (that is, the quality of heat which each substance requires to raise the temperature a certain number of degrees,) the specific heat of milk, as shown by the average of several determinations is 0.847; that of cream 0.78; that of water being 100.

"The point of maximum density of milk was found to be not over 1° C. (1 4-5° Fahr. above the freezing point of water.) It thus appears that milk continues to grow denser as it is cooled until the temperature reaches 1° above freezing or lower, while water, as is well known, is densest at 4 C. above freezing, or 39.2° Fahr., and expands in cooling below this. The upward and downward currents found in a mass of water thus cooled to the freezing point would, according as Fleischman infers, not occur in milk. Hence the cooling of milk to the freezing point would help rather than hinder the raising of the cream."

Prof. J. B. Roberts, of Cornell University, at the same meeting, traced the defects of several breeds, and gave his views of the manner in which a breed could be originated by the prepotent influence of a male thoroughbred on selected common stock. By a thorough weeding and selections four generations would vastly improve, and it might then be maintained by judicious in-breeding. He gave as the average rations of a cow of 1,200 to 1,400 in full milk in winter, 25 pounds hay, 2¼ pounds bran, 7¼ pounds corn meal. Some very interesting statistics were given in regard to the effects of feeding cold food, which elicited considerable discussion. Prof. R. was opposed to feeding very cold food; 70 degrees was cold enough.

He illustrated by scientific formula the cost of raising the temperature of water from 35 degrees to 70 degrees, and showed that the cost of warming water to that degree by coal in a boiler was less than one-fifth what it costs to warm it by food inside the cow. He made the proportion of cost by coal as $7.00 to $37.45 by food. He estimates fifty pounds of water as required by a heavy cow per day. And by an accurate test found that a ton of coal at $7 would warm as much water from 35 degrees to 70 degrees as $37.45 worth of hay, bran and corn at $14, $20, $25 per ton fed to the cow.

[The editor of the Buffalo *Live Stock Journal*, from which we copy the report, says that the Professor's figures correspond with his own experience.]

A successful feeder of cattle says the best criterion for judging of the disposition of a beast to fatten quickly, is that peculiar, soft, supple feel of the skin, which is commonly called handling well. This is generally accompanied by hair of a soft, fine quality, in great plenty.

Horticulture.

Horticultural Development around Baltimore.

While our city has always had a number of zealous amateurs who were distinguished for their love of horticultural pursuits, and whose memories will long live as the names of varieties originated by, or called after them, yet this taste has never been enough spread. We believe now it is extending, and its effects are being seen and felt, not only by amateurs, but by the commercial growers, and the general public is gathering the fruit also of the extension of this refined and refining taste.

At Patterson Park, one of the public parks of the city, a conservatory of handsome design and dimensions large enough to contain a creditable collection of plants is about to be erected, and doubtless under the efficient management of Mr. Fraser, will be an attraction of great delight to the citizens who frequent that popular resort.

At private places the same stir is seen. Mr. W. W. Spence, at Bolton, his beautiful place, which is a charming bit of country almost entirely surrounded by city walls, has recently put up probably the most modern and attractive greenhouse in or near the city; President Perot has annexed to his other structures, at his finished seat on the Charles St. Avenue, quite a large Fern and Orchid house; Mr. Rasin has added a third to his two already well-stocked houses; Captain Snow, of Harford, is contemplating an enlarged plant-house to replace his present ones, which do not give room for flourishing palms and other plants of tall stature. Numerous other alterations have recently been completed or are in progress.

Among the trade, improvements seem likewise to abound, and building new and enlarging old greenhouses seem quite the order of the day on all the main roads where the florists congregate. The cut-flower business during the holidays and since seem to have been satisfactory, notwithstanding the cry of hard times. Mr. Pentland's handsome store at the corner of the new building of the Young Men's Christian Association seems especially adapted for a flower business, and has been exceedingly well patronized. The same is true of his neighbors, Messrs. J. Edw. Feast and R. J. Halliday.

Among other new additions to the commercial list, are Mr. Archibald Brackenridge and Mr. W. F. Massey. The former takes the florist's portion of the business of his father, Mr. W. D. Brackenridge, at Govanstown, and is adding to his houses with the purpose of largely increasing his product of flowers. Mr. Massey, having found his facilities at Chestertown restricted by the difficulties of transportation, in order to accommodate himself to the demands of his widespread business will remove at the close of the spring trade to Waverly, in the vicinity of Baltimore, where he is about building large houses and going more largely than ever into the production of plants and cut-flowers. Both these gentlemen will be an acquisition to the trade of Baltimore.

These facts all show, we think, that horticultural art and taste are advancing with us.

Maryland Horticultural Society.

The January meeting was held in the Café of the Academy of Music on the 21st, with President Perot in the chair. A very good assemblage was in attendance.

There was no show of plants set for that month, but a number of members had specimens present. By the thoughtfulness of Mr. James Pentland, a large bank of flowering and foliage plants was effectively arranged at one end of the hall. Messrs. Chas. Bucher & Bro. had a fine collection of Chinese Primroses. Mr. John Feast had Heaths in pots, and a flower of his seedling Camellia "Mrs. Tabb." Mr. Brackenridge had a few Orchid flowers, and Mr. Fraser, Superintendent of Patterson Park, had a bunch of Jasmine nudiflorum in full bloom, cut out of doors. The attractions of the evening were, however, a collection of double Chinese Primroses brought over by Mr. John Saul, of Washington, which were admitted to be the finest specimens of these plants ever seen on exhibition. The flowers were as large as Carnations and abundantly produced, exceedingly double and beautifully imbricated.

Mr. August Hoen, chairman of the select committee appointed to co-operate with a similar committee of the Academy of Sciences on the feasibility of establishing a botanical garden, reported that they had met in an informal conference, at which a free exchange of opinion was had. It was found that the Academy of Sciences purposes establishing such a conservatory in Druid Hill Park, and it has made arrangements with the park commissioners, prescribing certain conditions, establishing regulations and other details for the management of the institution. These conditions stipulate that the sum of $50,000 should be first secured through the agency of the Academy before any steps in the matter be taken. The Academy has been endeavoring to raise this sum, and although they have had some large subscriptions, they have not as yet been able to raise the whole amount required, and for this purpose they solicit the aid of the Maryland Horticultural Society. In response to this the committee of the Horticultural Society approves of the object and sympathizes with the Academy of Sciences. The committee doubt, however, that the sum can be raised by voluntary subscriptions, and

suggest that the city authorities should either appropriate the money or make a special tax for the purpose.

The committee appointed to memorialize the Legislature for a law against vagrant stock, requested permission to limit the application or restrict the limits in the memorial to within fifteen miles of Baltimore city, instead of making the law general in the State, as at first proposed. The latter, they stated, after consultation together and after taking legal advice, they believed they would not be able to accomplish, but it was probable they would secure the substitute proposed. This, they think, will make an opening, and the law can be extended hereafter if it is found to have the desired effect. The fifteen-mile limit will include nearly all the market gardens, the bulk of Maryland's nurseries, and the most highly horticulturally improved neighborhoods. The request of the committee was granted.

Mr. W. D. Brackenridge read an interesting paper on Evergreens, illustrating his address by specimens of their growth, cones, seeds, &c., and Mr. John Feast read another on the same subject.

Mr. John Saul, at the request of the President, gave some account of the process by which he had brought to such wonderful perfection the Chinese Primroses presented by him. He said it was on the general principle by which all fruits and flowers had been improved, that of careful selection. For twenty years or more he had been engaged in this work, advancing very slowly,—sometimes not for five years getting a flower worth saving, but gradually reaching the point of perfection now seen.

On motion of Mr. Pentland the thanks of the Society were tendered Mr. Saul for the opportunity he had given it of inspecting his beautiful products.

Mr. Jno. A. Needles called the attention of the Society to the importance of every member securing additions to membership, and the President concurred, saying he thought the Society ought to be able to obtain at least two thousand members this year.

Potomac Fruit-Growers' Association.

January (Annual) Meeting.

Messrs. Editors American Farmer:

The following officers were chosen for the ensuing year: J. H. Gray, president; C. Gillingham and Mrs. H. E. Nute, vice-presidents; J. E. Snodgrass, secretary; E. P. Howland, treasurer.

Mr. Gillingham finished the subject of the Apple, reading a paper on

THE INSECTS OF THE APPLE.

They are—1. The Borer (*Saperda bivittata,*) which is a nocturnal insect, and very destructive to orchards. The female deposits her eggs on the lower part of the trunk. These hatch out a footless grub, which enters the tissues of the bark, burrowing deeper as they grow, till they penetrate the heart of the tree. In the spring the perfect insect emerges to the light of day.

To destroy them, cut into the discolored and depressed portions of the bark, and if the worm has penetrated into the wood follow him with a strong wire. As a preventative, scrub the bark with soft soap, or other alkaline washes, in May or June; at the same time placing some in the forks of the branches, to be dissolved by the rains. Examine the trees again in August, cutting and hunting for the worms as before, injecting some of the wash. Encourage the presence of birds, specially those which destroy the grubs of wood-boring insects.

2. The Thick-legged Borer (*Chrystobothris femorata,*) is a variety common to the West. The perfect insect, a black beetle half inch long, may be found on the trees in June and July. It works higher up the trunk than the *Saperda*. Seek for the young in their shallow burrows in the bark, in August, before they have entered the wood.

3. The Twig Borer (*Bostrichus bicaudatus,*) attacks the small limbs, producing an effect similar to blight; and causing the death of the limbs in mid-summer. The insect is a beetle ¼ inch long, and works his way into the wood near the axil of a leaf. Catch and destroy the insect; cut off and burn the dead branches.

4 Another variety is the *Leptostylus acufiferus*, a short, thick, brownish-grey beetle, with spines on his wing covers. Look for it in August. The larvæ are small worms, which make long winding burrows under the bark.

5. The Bark Beetle (*Tomicus mali,*) is a new variety; is small, smooth, black or chestnut red, and cylindrical. The young feed under the bark and penetrating the wood destroy the young trees.

The remedy for the two last is to keep the trees well washed with strong lye, made white with lime, during May and June.

6. The Bark Louse (*Aspidiotus conchiformis*) makes sad devastation in some sections. This louse is very prolific, and soon covers the young twigs, abstracting the vital juices. Often the leaves and fruit are overrun. The *nidus* of these insects is the well-known "scale" found on the branches, flat, brown and over-lapping. The eggs hatch in May, and attacking the bark the lice absorb the sap.

Washings of strong lye, or solutions of potash or soda, or whitewash lye and sulphur, or tobacco boiled in lye, etc., are remedies. Make your applications in May or June. The lady bird feeds on this insect.

7. The Leaf Louse (*Aphis mali*) is a small green wingless insect. They crowd upon the tips of the twigs, and on the under sides of the leaves, living upon the sap. The eggs are laid in deep cracks of the bark, and hatch when the buds expand.

To destroy the eggs scrape the bark and apply alkaline or lime washes.

8. The Root Louse (*Carpora pyri*) is a very great pest. It is found on the roots in warty excrescences. To destroy, remove the earth and apply hot soap-suds. This insect is specially destructive to nursery stock.

9. The Codling Moth (*Carpocapsa pomonella,*) gives so much trouble that we have now but few perfect specimens of fruit. This moth appears early in the summer, and drops its eggs simply on the blossom ends of the fruit. The grub passes thence to the core of the apple. In three

or four weeks it reaches its maturity, and eating its way out, instinctively seeks the foot of the tree, secreting itself under the bark, passes in the pupæ.

We now have the opportunity to catch them. They may also be caught in rags placed in the forks of the trees, or by bands of hay placed round the trunks. These should be examined as often as once in ten days.

The moth may be caught by lamps or fire in the orchard. Wormy fruit should be picked up and cooked for the stock; or sheep, etc., kept in the orchard will destroy many of the insects.

10. The Tent or Nest Caterpillar (*Clissiocampa Americana*) is found not only on the apples but also on the wild cherry and persimmon trees. The eggs may be seen in the winter under a sheath, and the branches cut off and burned, or the nests may be destroyed in the spring.

11. The Sapped Caterpillar (*Gostrapacha Americana*) is a flat worm, and when at rest can scarcely be distinguished from the bark. They feed only at night. The remedy for these is to hunt for and destroy them. G. F. N.

Washington, D. C., January, 1876.

Selection of Fruit Trees.

Messrs. Editors American Farmer:

As the season for setting fruit trees is still good, in consequence of the present unusually mild winter, and spring time will soon arrive, we deem it proper to remind those who design to set new orchards or add to old ones, that the great and fatal error is, in getting too many varieties. No orchard containing a great variety of sorts can be profitable either for home use or for market. Our societies for the promotion of fruit culture are principally to blame for this common error. They induce nurserymen and fruit-growers, by liberal premiums, to grow and exhibit as many varieties as possible without regard to adaptation or quality; and he who can spread out one or two hundred sorts gets the premium; whilst he who has only a dozen of the best kinds adapted to his locality is scarcely noticed; although, in reality he may be a large and successful grower of the very best varieties. This is wrong and the officers of the societies should see to it.

Propagation with the view to improvement is right and desirable, but should be generally confined to nurserymen and extensive culturists. Farmers, especially those who aim at small orchards, cannot afford to cultivate a wide range of sorts. A few of the very best, and those best adapted to his latitude and soil, *from the nearest reliable nursery*, is what is needed; and, as to adaptation, he has only to examine the orchards around him during fructescence, and with half an eye he can select what would suit, both as to fruit and tree; and there are a few leading sorts that have a wide range, and are good almost everywhere. For instance in Piedmont Virginia the *Wine Sap*, at the time of this writing, (January 20th) is almost the only fruit in the cellars of our farmers. This proves hardiness, adaptability, and keeping quality; inasmuch as the last season was the most fatal for the apple and peach ever known here—and the writer's experience in fruit seasons is not very limited.

If the above remarks are correct, and we think they are, it may be easily seen that no author or orchardist can make out a proper list for one outside of his own district; an approximation to it is all that should be expected.

Many plant without knowing what to plant. They have no work on fruit culture to aid them, and do not read the agricultural journals. They plant at random—often fail—and blame the trees or their nurserymen, when nobody is in fault but themselves. It is encouraging, however, to know that any farmer, as a general thing, can have good fruit, and in abundance, if he plants right and takes some pains in the selection and care of his trees. J. Fitz.

Keswick Depot, Albemarle Co., Va.

Grapes for a Cold Grapery.

Having been asked what are the best grapes for a cold grapery, Mr. Meehan replies:

The best of all kinds for a cold grapery is the Black Hamburg. Perhaps for an amateur who takes pleasure in their growth, some variety would be preferable. In this case a vine or so of some of the forms of Chasselas for earlier, and the West St. Peter's for later, might be desirable. These are very old, but standard kinds. If one is particularly fond of the subject, of course some of the newer kinds, as Golden Hamburg, Muscat Hamburg, Trentham Black, &c., may be introduced; but still looking to the Black Hamburg as the leading stand-by.

Fertilizer for Strawberries.

A correspondent of the Lancaster *Farmer* procured half a hogshead, filled it with rain water and put into it ½ lb. of Ammonia (sulphate?) and ½ lb. common nitre. When the strawberry plants were blossoming out, he gave them a sprinkling of the solution at evening twice a week until the fruit was nearly of size. The result was double the amount of fruit on those where the liquid was applied, to what was obtained from those alongside, to which none of the liquid was applied.

Floriculture, &c.—February, 1876.

By W. D. Brackenridge, Florist and Nurseryman, Govanstown, Baltimore county, Md.

There is a propriety in having everything in its season and place. To have two or three of the choice kinds of winter-blooming Carnations in the greenhouse at this season, is very desirable. As a general thing, they all partake more or less of the agreeable fragrance of the old-fashioned Clove Carnation. To have bushy plants that will produce one to two dozen of open flowers at one time, it is necessary to prepare the plants now by inserting cuttings; these, when rooted, should be planted out in May, in a bed of rich light loam, observing every two weeks during the summer to pinch back the erect growing stems, so as to cause the plants to bush out—this pinching should be continued on

to the end of August; late in September the plants should be lifted and placed in 5 to 6-inch pots, then to be removed to a close cool frame, where they will soon begin to show flower-buds. The best white-flowered kinds are President Degraw, La Belle and Madame Alegatiere. Of colored or carmine sorts, we recommend La Purite, Meteor, La Purite variegata and Brutus; the two last are striped, and profuse bloomers.

Any one having a high-roofed greenhouse, and cannot afford to attend to plants of a delicate constitution and dwarf habit, would do well to procure, as being free winter bloomers, the following kinds of Abutilons, viz: A. Boule de Neige, pure white; A. vexillarium pictum, and A. Duc de Malakoff, which has large crimson veined flowers. And as other two free winter-blooming plants, of easy culture, and bearing large racemes of purplish-red flowers, we name Habrothamnus elegans and Coccineus. These, with a few single and double Chinese Primroses, Scarlet and Pink Geraniums, with the Cinerarias now coming into bloom, together with this being the Camellia season, a house containing all these ought to look gay; and if the Azaleas have been kept in the warm part of the house, they will add much to the effect and interest of the whole.

Many of our hardy shrubs and herbaceous plants, if potted in the fall, and afterwards placed in heat, are exceedingly showy and effective; producing abundance of flowers well calculated for table decorations; in these we mean Deutzia gracelis and D. crenata, Spiræa Revesii and S. Thunbergia, also Wigelia rosea and Rubus grandiflorus flora pleno. The Bleeding Heart or Dicentra spectabilis and Spiræa japonica, being free bloomers, are airy and attractive objects, and come well into play with Hyacinths, interspersed with Ferns, or where there is a preponderance of green in the house.

Young Calceolarias should not be permitted to become pot-bound, but shifted into larger sizes, from time to time; a six or seven-inch pot is large enough in which to bloom them; they should be kept near to the glass in a temperate situation, rather inclined to the humid side, for if kept in a dry atmosphere, and high temperature, they will be subject to the attacks of red spider.

Cyclamens, when in bloom, require a liberal supply of water, which should be lessened by degrees as the plants pass into a dormant state.

Now is a good time to multiply plants both by cuttings and seeds: pure sand is the best in which to insert the first, using a light sandy soil for seeds, while a gentle bottom heat is beneficial in starting both into action; choose a place near the furnace, if you are not furnished with a tan-bed.

If purely tropical plants are grown in what is known as a hot-house, where the temperature ranges from 60 to 75°, then Begonias, Anthuriums, Alocasias, Caladiums, Cissus discolor, Clerodendron Balfouri and Crotons just require such a temperature, while Coleus will also winter well in such a house. And two-thirds of Epiphytical Orchids may then find themselves at home, to produce their flowers, after which their season of rest may be passed in the greenhouse. Terrestrial Orchids—such as Bletias, Calantheas and their allies, well deserve the attention of cultivators, and do not require so much knowledge in their management as the Epiphytical ones; but, in truth, none of the two sections are so difficult of cultivation as is generally supposed.

Lawn and Pleasure Grounds.

Last month we intended to say something about pruning shrubs, but as we had it a previous number gone somewhat into detail as to the kinds it was safe to prune now, without losing their flowers next summer, and should the weather continue as mild the coming month as the past one, such work may now be done, and to guide the novice in such matters we enumerate some of the kinds that can with propriety be pruned now, viz: Altheas, Vitex, Agnes-Castus, Ceanothus Americanus, Locusts of the dwarf kinds, Bladder Senna, most of the Hypericums; all the kinds of Tamarixes flower better by being cut back; Crape Myrtles will stand pruning now.

Those that flower on last year's wood are: Forsythia, Wigelia, Pyrus Japonica, all the Lilacs, Spiræas, Mock Oranges, Erect Honeysuckles, Snow Berries, Hydrangeas, with many others of a similar nature, which at present should only have the dead wood cleaned out, leaving the shortening back process until after they have done flowering, which is usually in late spring or early summer. The work should be performed with a sharp knife, and not with shears, which leaves the bush like a mop: when larger wounds are made, they should receive a coat of pitch in order to shed off water. Towards the end of the month preparations should be made for the planting of deciduous trees, and during frosty weather lawns may yet be top-dressed with some enriching substance, as compost of earth, manure and ground bone.

Tea Roses.

Messrs. Editors American Farmer:

Many persons are deterred from planting Tea roses owing to the extreme tenderness of some of the finest varieties, especially those of straw or yellow color. I have for some time past adopted a plan, which I have seen practiced North, with the greatest success. We have often mild winters, when the Tea roses are very little hurt except the late tender growths, but then again we have seasons like the last winter, which kills every Tea rose to the ground. So it is better to be on the safe side. Early in November I dig a trench about a foot deep and about the same width, the length according to the number of plants you wish to put in it. As they stand in the ground I roughly prune, cutting back any exuberant growth, and draw the branches together so as to make them more compact. I then carefully take them up with a fork spade so as not to cut the roots, and then put them in the trench, setting them slanting, and covering the roots with soil a little deeper than they were planted before. Press down with your foot any of the branches that may be above the level of the ground. Cover the trench lightly with corn fodder, and when the extreme cold comes on increase the covering.

They will not need any more care until the spring. (I would here say that the trench should never be dug except in a high and dry place, so that the water cannot stay in it.) Bury early in spring (by the middle of March with us in Maryland,) dig the holes when you wish to plant your roses, putting in a large shovel-full of compost, of gravelly loam and well-rotted manure. Then take your roses out of the trench and prune them back to within six inches of the ground. This close pruning is required on account of the unavoidable loss of some of the roots in lifting. Replant a few inches deeper than they stood the year before. Spread out the roots so that they can have more room for feeding. This lifting and replanting will check the roses and they may not come into bloom quite as soon as any that may have stood the winter, but when they do bloom they will be very fine and keep on blooming through the dry weather.

Two good hands could dig the trench and put 50 plants away in half a day; in far less time than they could be protected in any other way.

CEDAR MOUNT.

Ferneries and their Management.

Mr. Meehan has the following to say, in the *Gardener's Monthly*, of these useful and beautiful plant-cases:

Ferneries are now so deservedly popular, that we must have a word to say for them at times; though their management is so simple, there is little one can say. It is probably their ease of management, and the great results obtained for the little outlay of care, that has rendered them so popular. It should not, however, be forgotten that the cases in which they are enclosed are not to keep out the air, but to keep in the moisture, as ferns will not thrive in the dry atmosphere of heated rooms. A few minutes airing every day will, therefore, be of great benefit to them. Decayed wood (not pine) mixed with about half its bulk of fibrous soil of any kind, and a very small proportion (say a tenth of the bulk) of well-rotted stable-manure, makes a good compost. Most kinds particularly like well-drained pots. This is usually effected by filling a third of the pots in which the ferns are to grow with old pots broken in pieces of about half an inch square, on which a thin layer of moss is placed, before filling the pots, to keep out the soil from choking the drainage.

Many very pretty ferneries are made up entirely of native ferns, some species of which are within the reach of every one. Of the exotic ones, however, that are now general in most florists' establishments, and are remarkable for their elegance and beauty, we may name, Selaginellas (formerly Lycopodiums) S. stolonifera, S. densa, S. Mertensii, S. denticulata, S. cordifolia, S. flabellaris; Adiantum concinnum, A. pubescens, A. cuneatum; Pteris longifolia, P. serrulata, P. hastata; Polypodium Sieboldii, P. glaucum; Doodia caudata, Gymnogramma chrysophylla, Platyloma rotundifolia, Nothoclæna nivea, Pteris geraniifolia, Hemionites palmata. This will form a good and easily obtained collection to commence with. Ferns are easily raised from seed. Shallow pans of very sandy soil should be procured and filled within an inch of the rim. The seed, which is obtained from the brown lines or spots (called by botanists, Sporangia) on the under surface of most mature fronds, should be sown on the surface of the soil, well watered with a very fine rose, window-glass placed closely over the pans, to keep in the moisture and keep out small insects, and the pans themselves set in a heat of about 50°, when the spores will germinate in about two months.

A Beautiful Climbing Plant.

A correspondent of The London *Garden* recommended those in want of a quick-growing Summer climber for covering a wall or trellis to get the interesting *Physianthus albens*, a small plant of which he says turned against a wall with a warm exposure about the end of May, covered five or six square yards of surface, every joint being furnished with a raceme of pure white flowers. Mr. Meehan notices the recommendation to say that the plant is even a better one for American gardens than for English ones. Last Autumn he saw it in Ellis Park, Chicago, more handsome than he ever saw it before, covering trellises eight feet or more high with hundreds of its large, waxy, white flowers. It is of cruel tastes, however,—the flower catching insects, without any use whatever, so far as it is at present known.

Pretty Arrangement of Plants in Pots.

Among the prettiest things we have ever seen in the London flower market, says the *Garden*, are small pots containing growing plants of forced Lilies of the Valley, and a few fine crimson Tulips, growing out of a healthy little tuft of the common Maiden-hair Ferns.

The same journal, of January 1st, said, among the most beautiful of all pot plants now brought to Covent Garden market is the lovely little Siberian Squill, with drooping flowers of the clearest and most vivid blue color imaginable. Nothing could be prettier than pots of Lilies of the Valley and tender young Ferns, neatly but not too regularly margined with this beautiful little Alpine bulb.

"Gardening for Pleasure."

This is the praise awarded by *The Garden* (the highest authority) to the little work of the above title by Mr. Henderson, recently published, and noticed in the *Farmer:*

"This is a handy little book and one for which we have a hearty welcome, for it is rarely that we find so much sound and practical advice given so plainly, or contained in so small a compass. * * * As a matter of course this book is written for American readers, and the selections are made with a view to suit a climate which differs in many points from ours; notwithstanding this, however, it would be useful to any English cultivators. To such we can confidently recommend it as being generally a straightforward little book from the hand of a thoroughly practical horticulturist."

DOUBLE SCABIOSA.

Almost every one, says Vick in his *Floral Guide*, is acquainted with the old-fashioned flower, the Sweet Scabiosa, or Morning Bride. This flower remained without improvement for at least a century, and up to within a very few years, but the improvement has been rapid and important. The new varieties are more compact in habit than the old sorts, while the flowers are more dense, the head being covered with fully developed flowers quite to the center. We give an engraving of one of the better sort, which we picked in the autumn, after several severe frosts. The plant is so hardy that those that have not been exhausted by flowering will often endure the winter and flower freely the second summer. The Scabiosa will never take a very high rank among our floral treasures, but will always have a good many friends, and these we know will be pleased with a truthful representation of one of the newest and best varieties. Scabiosa has been so long in cultivation that its native country is unknown. The *doubling* of the Scabiosa is simply the enlargement of the central flowers, as will be seen by the illustration of the *old* and *double* flowers.

The Vegetable Garden.

Work for February.

We always plead for an abundantly supplied garden, not so abounding in space as in productiveness. No part of the farm pays better. It pays in healthfulness; in fresh and well-flavored products, such as are too often absent from the farmer's table. Bounteous supplies of vegetables and fruits ought to be seen on every farm; and in every aspect possible they form as important a crop as any other grown.

Hot-Beds ought to be made ready and seeds sown of early cabbage, cauliflower, and lettuce. A little later, and in a warm bed, sow egg plants, tomatoes and peppers. Radishes may be sown thinly through the beds and will thus give an abundant supply.

Celery seed may be sown in a sheltered place out of doors as soon as the ground is dry enough to be worked.

Carrots, beets, peas, radishes and lettuce may be sown when the ground will permit. Earliness is gained by using a sheltered border. Asparagus beds ought to have a good dressing of manure if not already applied; Rhubarb beds need the same, and a few roots may be advanced by covering with barrels and banking fermenting stable-manure around them.

THE AMERICAN JOURNAL OF MICROSCOPY is the title of a neat and unpretending monthly, published at 50 cts. a year by the *Handicraft Publishing Company*, New York, devoted to the service mainly of amateur microscopists and to popular science.

Vegetable Notes.

THE TOMATO.

I make it a general rule to try some new seeds each year. The past summer I tried Hathaway's Excelsior Tomato, and am very much pleased with it. It ought to be one of the very best varieties for either canning or shipping, as it is of full medium size, globular, the most uniformly so of any variety that I have yet cultivated; very productive; ripens perfectly, and slices and stews as good as any and better than many. The Feejee is decidedly the best variety for the amateur gardener that I have ever tried. My family like it so much that it is their standard of excellence and discourage my trying any other. My plants were killed by frost only on Friday, 10th December.

THE CAPER.

I am quite surprised that in your section, where you have such fine mutton, and, consequently, must eat a great many boiled legs, which are poor without the caper sauce, that most of your intelligent farmers do not grow their own capers, and that no nursery man offers the plants for sale. I cultivated a few plants before the war, and my crop was four bottles of the pickles to each plant yearly, and better was not to be bought, and the trouble was only to gather the pods and drop them in vinegar. Andre Le Roy & Co., of Angers, furnish plants at two francs each, and they live many years, are deciduous, and, therefore, do not require to be grown in a warm climate, I believe. C.

South Carolina.

[We believe the Caper is not hardy in this climate.—*Eds.*]

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FEBRUARY 1, 1876.

Our New Volume.

Notwithstanding the general dullness of the times, and the scarcity of money, especially in the country, *The American Farmer*—thanks to the favors of its friends—is doing, as we are sure they will be glad to know, better than last year. Subscriptions received in the month of January show a very handsome increase over the corresponding month of 1875, and our advertising supplement gives evidence of the partiality of our patrons in that department, who wish to bring their productions to the notice of the intelligent readers of this journal. To all who have contributed thus far to accomplishing this, we owe our hearty thanks.

We trust that this aid will be continued, and that our hope of doubling during this year our subscription list of last, will be accomplished by their kind agency.

As usual, when our friends send us the names of subscribers, and do not find it convenient to collect and remit with their lists, we are entirely willing to wait until March 31st, if notified that the amount will be remitted then.

The American Farmer at the Centennial.

We are indebted to Messrs. Bickford & Huffman, the manufacturers of the renowned "Farmer's Favorite" Drill, through their agent in this city, Col. H. P. Underhill, for a courteous invitation to make our headquarters during the Centennial Exposition with them, in the spacious area which they have secured for the exhibition of their machines.

The Dog and Sheep Law.

We hope the farmers all through the State will, as clubs or individuals, push forward numerous petitions to the Legislature for an effective law for the protection of sheep. There are several propositions before that body, and if the farmers will show that such a law is absolutely essential to their interests, we think it can be secured, if demanded with a show of unanimity and zeal.

The Inspection of Tobacco.

The interest in this subject increases, and, we believe with all classes concerned, the more it is discussed, the more decidedly is the tendency towards favoring the abolition of the system of State Inspections.

The report submitted to the General Assembly by the Comptroller shows that instead of its furnishing any revenue it is a tax on the Treasury, and that since its inauguration it has cost the State, above receipts, $61,168.04; special appropriations having been made in 1874 of $15,534.33 to meet claims against the Tobacco Warehouses.

This, too, without any adequate advantage resulting. The committee representing the Tobacco trade which appeared before the House Committee on Inspections showed that while years ago an outage of 25 cents per hogshead was sufficient to *build* the warehouses, now $2.00 a hogshead will not *run* them; and that abroad little or no dependence is placed in the samples of State inspections.

It is argued, and with reason, that the whole system of governmental inspections is a relic of antiquity, which ought to give way in this, as it has already in many other directions, to more modern ideas, which oppose any interference, restraints or inspections by public officials in any branch of trade—the question of quality, weights, &c., being one to be determined between buyer and seller, and depending upon the skill and discernment of the one and the reputation of the other.

The proposed trial side by side of the two systems of State and private inspections is

generally put aside as impracticable, and wholly unlikely to give a fair test of the latter.

An element of uncertainty involved in the solution of the problem is the intimate connection of the present system with political movements in the State. The Inspectorships and all the lower grades of offices in the warehouses are bestowed as rewards for party services; and of necessity the very lowest degree of efficiency can hardly be expected under such conditions. The abolishment of this opportunity of distributing patronage will of course meet great opposition, but we hope as discussion and examination throws more and more light upon the deficiencies and crudities of the present system, the planters will be disposed unitedly to ask its absolute abandonment. This is sure to come eventually, and we believe it is time for it to come now.

The State Board of Education on the Agricultural College.

If anything further was needed than what was said in our last on the desirability of a change in the management of the institution, we think the following from the report of the Board of Education will be sufficient.

It will be seen the recommendation of this body agrees with our own, that the private interest ought to be extinguished. An institution of learning, no more than a business establishment, can be successful when liable to such changes; with subordinates intriguing for a continuance or removal of the authority in charge, and parties outside manœuvring for control.

We cannot concur in the proposed construction of a State Board. The State, if sole owner, doubtless ought to be directly represented; but we adhere to our suggestion, that, in a board of five, four members ought to be farmers of known intelligence, well educated, and successful in their profession: such men only can lay out a plan for a thorough-going school such as we want in this State:

"The decline in the Agricultural College, which was mentioned in the last report, continued to the end of the past scholastic year. To the causes of this decline it is needless to refer here, except so far as to obtain guidance for the future. The college has passed into new hands; of the old officers and professors but one is left; a new programme has been laid down, and the public are expected to believe that under the new regime the errors of the past will be retrieved, and the promises of the past redeemed. Were this the first time that a similar confidence has been invited, these promises would readily be accepted without discount. But as the College has now had six different Presidents in nine years, and has been reorganized by each successive President, it is impossible to avoid the conviction that even reconstruction may fail to produce the long-wished-for result. The most important portions of the last quarterly report of the lately appointed President, Captain Wm. H. Parker, are given below, from which it will be evident that he has entered on his duties in the right spirit, with correct views of the proper functions of the College, and the best intentions with regard to the finances.

The question, "What has led to the past failure of the Agricultural College," may now be briefly discussed without prejudice, and, indeed, without reference, to the present faculty. My opinion is that while a great many subordinate causes have contributed to this unfortunate result, the principal cause has been a want of unanimity and permanence in the governing Board of Trustees. Want of unanimity is what every institution controlled by a Board may have to contend against occasionally, and no legislation can prevent it; but when to this we add the risk of having the complexion of the Board changed every year, so that the minority of each year may be the majority of the next, the danger of failure is very greatly increased. Still, this is not the worst. The constitution of the Board is such that there may be a change of policy every quarter, without there being any change in the opinions of individual members. The Board consists of eleven members, of whom five make a legal quorum; three members, therefore, (a majority of the legal quorum) may determine on a certain policy, and three other members may reverse it at the next meeting. *This has actually happened.*

Despairing of success under this condition of affairs, I proposed last spring that the management of the College should be entrusted, informally, to the State Board of Education, or to an Executive Committee of three, of whom two should be members of the State Board. The proposition was declined.

I am still of opinion that unless that feature of the charter is changed by which seven Trustees are elected annually by the Stockholders, the College cannot succeed, under any President and with any Faculty. So long as the interval between two annual meetings is spent by the defeated party in collecting proxies to carry the next election, there can be no consistent policy and no permanent Faculty. A man may occasionally be found shrewd enough to count the votes beforehand, and supple enough to change his sentiments to suit the anticipated majority, but such men are rare, and colleges are not built up by them.

The State owns one-half of the College property; and pays (directly or indirectly) the whole expense of maintaining it.

I believe most of the stockholders would be willing to surrender their shares to the State, and the interest of the remainder could be purchased at a reasonable price. If the College is to be continued, this is the policy I should recommend. I had formerly thought that under these circumstances the College should be governed by the State Board of Education and managed as the Scientific School of the State, and the connecting link between the district schools and the scientific course of the Johns Hopkins Univer-

sity. But I now suggest that the Trustees should consist of five members appointed by the Governor, three from the State Board of Education, and two from among the practical farmers of the State."

Deferred Communications.

A large number of articles are of necessity left over this month for want of space. One from our friend Mr. G. C. Gilmer, of Va., reached us too late for this number. It is upon the advantages offered by Virginia to settlers from the Northern States and Canada. A paper from Mr. D. M. Matthews, on utilizing straw on the farm, will be given next month; as will another from a Mississippi correspondent on trenching fodder.

"Tax-payer," a graduate of our State Agricultural College, agrees with the views we expressed as to that institution, but suggests its removal and combination with St. John's College, at Annapolis. A correspondent from another State explains why such schools have nearly all been failures in the United States; but the premises are entirely incorrect from which he reasons of the shortcomings of the one in Maryland.

The report of the Enterprise Club, of Montgomery Co., we are compelled to omit till next month.

Our correspondent, "Critic," at Washington is informed that our opinions, as is natural, agree with his own, but he must permit us to decline to publish his letter.

Mrs. Moore sends us some sketches of travel likely to interest many who will be visiting the Centennial.

A large amount of other matter is left over, for all of which we thank our correspondents: still repeating our request for all to continue to give us the fruits of their experience in every department.

The American Farmer Agency.

Our readers are reminded that the purchasing and shipment of fertilizers, seeds, implements and machinery, &c., &c., so long a part of the business connected with the publication of the *Farmer*, is continued. Our facilities are such that our friends who have no commission merchant here can obtain supplies through our agency at manufacturers' prices, and without any charges or commissions.

MR. W. S. DUNAN, it will be seen in an advertisement elsewhere, offers materials for fertilizers, including potash, salts and sulphate of ammonia.

Probateler Oats.

Persons wanting seed oats are referred to the advertisement of Col. Underhill, who has a lot, grown in New York, where a very large crop was raised of them. We have samples of these oats at our office. They are very bright and heavy, and worthy a trial. Parties desiring to purchase can send their orders through us if they wish.

The Farmers and Tax-Payers on The Agricultural College.

Elsewhere we gave a report of the Farmers' Convention in Montgomery Co. and noted its action in referring this subject to the mass meeting of its citizens. This meeting was held at Rockville on the 20th. The committee appointed presented the matter to the meeting. Several gentlemen spoke on the subject and the following preamble and resolutions were adopted unanimously:

WHEREAS, In the present depressed condition of business of every kind, it is incumbent on public bodies to observe a strict economy, not only as to appropriations about to be made, but as to the expenditure of those already provided for; and

WHEREAS, The Maryland Agricultural College receives, until otherwise ordered, an annual appropriation of $6,000 from the State, and nearly $7,000 through the State, from the General Government, and

WHEREAS, During the past 18 years, it has received a total of over $200,000 for the ostensible purpose of giving especial instruction in those arts and sciences indispensable to successful agricultural pursuits and for experimenting on cereals and other plants and for the "analysis of soils;" and

WHEREAS, This heavy drain upon the tax-payers of Maryland does not appear to have yielded the results anticipated, either in providing a model farm or in advancing agricultural knowledge, but

WHEREAS, Said College is largely engaged in preparing students for West Point and the Naval Academy,—purposes, however suitable in themselves, yet not compatible with agricultural education or having claims upon the tax-payers of the State, and

WHEREAS, The President of the College, in his report of Dec. 1875, hints at the necessity of applying to the present Legislature for further aid, over and above the $13,000 annually received; therefore,

Be it Resolved, By this mass meeting of citizens and tax-payers of Montgomery county,

First, That our representatives in the Legislature be requested to lay this preamble and resolution before the Committees on Education and Agriculture, and ask their earnest and careful consideration of the original purposes and present condition of the College, before making *any* further appropriations; therefore, resolved,

Secondly, That our representatives be requested to vote for no appropriation for the

College until said investigation has been made, and they are satisfied that it would be for the best interests of the tax-payers to do so, and that the said appropriation is to be expended in accordance with the provisions of the Charter of said College; thirdly,

Resolved, That the President and Secretary of this meeting be directed to sign the above, and forward them to our Senator and Delegates to the General Assembly.

The Farmers' Union of Baltimore county, an energetic and business-like association, has appointed a committee of three members to present the subject of the inefficiency of this institution to the attention of their county delegates. The committee consists of Samuel M. Rankin, who was a member of the Legislature that granted the charter and who remembers the promises made of the usefulness of such a College; Jno. D. Matthews, a successful farmer, and a stockholder in the College; and Dr. M. Merryman, a very intelligent and zealous member of the Union.

The following memorial has been circulated and largely signed in some parts of the State:

To the Honorable, the Senate and House of Delegates of the State of Maryland:

Your memorialists, citizens of———county, respectfully represent that the "Maryland Agricultural College," of which the State is half owner, and which is almost entirely maintained by the State, has, notwithstanding the large sums of public money appropriated to it, accomplished nothing for the advancement of agriculture or of agricultural education in Maryland; that the preparation of pupils for the naval and military academies of the United States is a wide diversion from the objects for which it was chartered and has been nurtured by the State, and that the present divided management is attended with disadvantages fatal to the well-doing of an institution of learning.

Your memorialists therefore pray your honorable bodies to appropriate an amount of money sufficient to buy out the private rights—represented to be worth a very small sum—and convert it into a *State Farm School* and *Experimental Station*, placing it in charge of a Board of intelligent and educated farmers, with authority, if found desirable, to remove it from its present site, and with such other powers and duties as may, in your wisdom, be granted said Board.

Your memorialists further ask that in such reorganized school provision be made only for teaching agriculture thoroughly and kindred sciences; and that by positive prohibition all military features and government be interdicted, except such instruction in "tactics" as the Law of Congress requires.

Accurate Drilling.

Messrs. Bickford & Huffman, of Macedonia, N. Y., write as follows to their agent here in Baltimore, concerning their seeding of wheat on the Centennial Exposition grounds:

"The Centennial Trial Field was a success: the ground sown, by actual measurement, contained 45 53-100 acres, and, at the rate of 5 pecks per acre, would require 56 bushels, 54¼ lbs. of wheat. We used, in doing the seeding, 57 bushels, 27¼ lbs.—an excess of 33 lbs. To account for this, if it needed to be accounted for, we sowed three headlands, upon which we lapped the width of three tubes, which would fully account for the excess, and reduce it to the most perfect exactness."

The Virginia Agricultural College.

President Minor recently reports that this institution, now only in its fourth year, had at the close of its session in August, 222 students from every part of the State, a great majority of them sons of farmers and mechanics who expect to work as such themselves.

Cost of Living.—Of the number, 97 lived in messes, at a monthly cost of less than $6.50, tuition and quarters free; the rates paid by the other students ranged from $10 to $15 a month for table board and lodging.

Manual Labor and its Compensation.—Besides the unpaid work done by the regular daily details, *from which no student is exempt*, all the other work that could be supplied was eagerly taken by the students, being paid for at the rate of ten cents an hour, or 75 cents a day: less being allowed to the smaller and less skillful youths, and more, rising to 18 cents an hour, to those having skill in trades, as a good many have, or to those who show great efficiency in directing the work of parties under their charge. Some are permanently engaged to do such work as cannot be done by the details. The system exacts labor from every student, furnishes paying work to the neediest, and tends by the mess system to foster economy and self-help. Each year, one or two or more students have met their whole expenses by the earnings from their work, and numbers have earned a large part of their expenses.

Buildings.—A two-story shop, 60 by 30 feet, has been finished and furnished with steam engine, circular and vertical saws, lathe, forge, work-benches and tools. In connection with the mechanical department, there is a school of telegraphy, and photographic apparatus provided. The military instruction is confined to the school of the soldier, the company and battalion, as required by the conditions of the Congressional land grant. The uniform of cadet, grey trimmed with black, is not required to be worn except at drill.

To have reached this in three years shows zeal, intelligence and faith, which contrast but too strikingly with what has been accomplished under more favoring circumstances in eighteen years in Maryland. The Virginia college is striving to meet the requirements of the classes for whose benefit it was established, and no halting, vacillating measures mark its management.

Spurry (Spergula Arvensis.)

I am quite surprised that in a section of country where so much butter is made, no attention, that I remember, has ever been called to this plant, which, when fed to milch cows, furnishes a butter that in Holland is known as spurry butter, and esteemed among the best kinds. It is a low-growing weed, growing only during our winter—is in flower now in my garden, and is so relished that I have never seen any cow hesitate to eat it immediately that it is offered. If it is allowed to ripen any part of its seed it re-sows itself, and will continue to do so for a life-time I believe. With almost no care, I have had it for more than 40 years. It makes a very fine hay, and ought to be very nutritious, as the seed furnishes oil. As it grows only during the winter, it does not interfere, in the least, with summer-grown crops. R. C.

South Carolina, Dec. 1875.

Grape Culture in Virginia.

A correspondent of the Richmond *Whig*, writing from Albemarle, says that that region is eminently adapted to fruit-growing, which is becoming an important business in that part of the Piedmont district, and vineyards and orchards are being planted out and extended, though not so fast as the natural advantages of the soil and climate would warrant. There are now some fifteen or twenty vineyards about Charlottesville, aggregating about 225 acres. Mr. Hotopp, the pioneer, has about 28 acres.

The same correspondent adds, that as an outgrowth of the vine culture, a commodious wine cellar has been constructed in Charlottesville, by a stock company, and its wines are making their names known widely in the markets of the country. At present the grapes are largely shipped to the Northern markets in August and September and the grapes for wine are made up in September and October.

"There is now here a French gentleman from the South of France, who is procuring a large number of cuttings of the approved American varieties to send to France. The French vineyards having been terribly ravaged by the Phylloxera, they are replanting the American varieties which are proof against the insect. He says that our wines fairly rival the French wines now in quality. The shipments of grapes sometimes during the height of the season have amounted to seven thousand pounds per day. The favorite varieties are, for market: Delawares, Ives' seedling and Concord. For wine: the Clinton, Concord and Norton's Virginia. The proceeds per acre range from $200 to $500."

The remark about the demand for our vines for France has several times been alluded to in these pages in our Paris correspondent's letters.

Mr. J. W. Porter, of Charlottesville, has a vineyard in the direction of Monticello, which is fast becoming noted for the excellence and variety of its products. Mr. Porter has sixteen acres in grapes and nearly all bearing. He considers Albemarle to be finely adapted to fruit-growing, and thinks the day will come when the culture of the apple and the grape will supplant that of tobacco and corn, and presents many good and substantial reasons for his opinion and belief on this point. Mr. Porter is giving attention to other fruits, and has planted out largely of apple, peach, cherry and damson trees. It is the natural home of the cherry, and on many farms are found immense trees, grown spontaneously and without care.

Kansas and Maryland.

The Kansas State Agricultural College, as we learn from the *Industrialist*, a spirited little weekly paper published *from the printing department* of the college, has this term 174 students in attendance. It offers what the people of that State want—"a thorough and direct education for the farm, orchard, shop and store, with tuition absolutely free." Here is what the President says of it:

"In September, 1873, the policy of giving an education for the direct benefit of the industrial classes, as distinct from the education framed for the direct benefit of the professional classes, was adopted. The execution of this new policy necessitated radical changes in the course of instruction, which were rapidly made. Against these changes it was urged, in many quarters and by many thoughtful persons, that the policy was an experiment; that the departure from the paths of professional education was too great; that manual skill in agricultural operations, and, especially, in the trades, could not be taught in a college; and similar objections. We proposed that this college should teach that knowledge and skill which the farmer or mechanic uses. The teapot-tempests excited by this determination never bothered us a particle. We believed we were on the right track to a thorough and practical industrial education; and that was the point to which Congress ordered this institution to go.

It is now two and one-half years since this experiment was put to the test. We have watched it closely and ceaselessly. It is different from that tried by any other institution in the United States in two particulars: first, the sciences are more absolutely shaped with respect to the value of their truths to the industrial workers; second, the manual skill, essential in the several industrial vocations, is more directly and practically taught. From Maine to California the Kansas Agricultural College policy has excited an interest among educators, and especially farmers, greater than that created by any other educational system during a similar period.

We now wish to say that, in our belief, this policy is no longer an experiment; it is a fact fully proven to us, and one which, with essential facilities, we will undertake to prove to the satisfaction of any number of candid jurymen. We have never said this before, because, though confident as to the result, we had not fairly tested the new methods; but now, on the strength of the facts which have been developed in the last two months, even under all the disadvantages of half-equipped departments and scarcity of room, we are ready to say to the State of Kansas, or to

any other State, that with just such facilities as are found on any good farm and in any shop run for profit, the matter of giving an education that is worth more money to the farmer or mechanic, than the ordinary education is worth to the lawyer or doctor, is a thing as easily done as is the latter. We do not say that this institution is yet able to demonstrate every point of this general proposition; because, first, it has not had the necessary time; and, second, it has not the needed tools—without which a demonstration is impossible. Our meaning may be better stated as follows: We would be personally willing to enter into a contract, with responsible sureties by both parties, to furnish any State, providing the necessary facilities, with an agricultural and mechanical college which should give an industrial education that would be accepted by any number of judges appointed by the practical farmers and mechanics of that State. *In other words, agricultural colleges can be made to do their work just as effectively as West Point is made to furnish a military education.*"

Maryland had better take such a contract, if she cannot do better than in the past. The Kansas College has been working on $19,000 a year, which, of course, is too little, with the course of instruction and the average number of pupils, who board themselves and get all the advantages the college offers absolutely *free*. Yet its work fairly shines in comparison with our Maryland "college," which gets from the State $13,000, besides what it makes from the students, averaging any number from a dozen to half a hundred, and paying $20 to $45 per month.

The agricultural population of Maryland is as large as that of Kansas. Our farmers need, in their struggle against the adverse circumstances surrounding them, more than those of Kansas, all the aid that science can give them; and a well-equipped, faithfully directed, earnestly working institutiop, such as they have there, would do more than almost any other one thing to resuscitate this depressed but vital interest. Let us have such a school, sending out every year a class of enthusiastic, well-educated, trained young farmers, and scattering good seed all over the State, and the agriculture of Maryland will soon cease to languish. Are the farmers of Maryland less alive to their interests than those of Kansas?

The Grange as an Educator.

We have been favored by the author, Rev. C. W. Howard, of Georgia, with a copy of his address "On the General Purposes of the Grange," delivered last February in Charleston, S. C., at the request of Ashley Grange, in the presence of the National Grange; and from it we make the following extract, regretting our space does not allow us to give more of this admirable production:

"The Grange is also educational, as to our sons. The lessons are general, but not the less direct and positive. It teaches that the farmer must be an educated man—that science "which has put on the leather apron and strikes with the hammer" in other pursuits, has shed its benign light upon the farmer—that marvelous as have been the advances in this century in the application of science in industrial pursuits, including inter-oceanic navigation, the railway and telegraphic systems, suggesting the ill-defined limits of human inquiry, in none of these sciences have the advances been greater than in that of agriculture. The word "science" in this connection is weighed, as the objections to exact and positive knowlege are not greater than in other sciences. Science, in its useful application, is wisdom. Wisdom is the right application of means to an end. In this sense, science in its application to agriculture, has accomplished marvels. Let any farmer, even not an octogenarian, look back upon the agriculture of his childhood in sections in which since that time improved agriculture has existed. The changes produced by the railway, the ocean steamer, and the telegraph, are hardly greater.

The Grange teaches that the farmer's boy must keep step with the times, otherwise he falls behind. He must be educated in a farm suitable to his calling; that is to say, that there must be an education of both mind and muscle. The mere education of the latter makes a clod-hopper. The mere education of the former makes an idle theorist. The combination of both makes a sensible, useful, and successful farmer.

The Grange teaches that while the education of the mind is noble, the education of the body is also noble—that the sound body is essential to the sound mind. Experience proves this theory to be correct. The soundest, healthiest minds which this country has known have been in the care of those who in early life combined study with labor—chiefly on the farm. Instances might be multiplied from Daniel Webster and Henry Clay downwards. A striking illustration is afforded in the case of a young Confederate soldier, a Tennesseean, since the war, who was poor, but who yet determined to obtain an education. He found his way to the Cornell University, sustained himself wholly by his labor during the University course, and at graduation received the grand gold medal for oratory. We hardly know which most to admire: the unbending resolution of this Confederate boy, or the magnanimity, nay the nobility of the institution which awarded its highest honor to a recent foe.

In the present day, as much educated mind is required in the successful conduct of the farm as in any other pursuit whatever. From an inadequate view of this necessity has arisen the impression among many farmers that they are elevating their sons by giving them a purely professional education. This is a mistake. For my own posterity, I wish to see them occupying no higher position than that of educated farmers, standing erect on their own lands, owing no man anything, fearing God, and doing their

duty to their neighbors. No public office, no professional success, can lift them above this lofty standard.

Besides its economic, social, and educational features, the Grange is also moral in its teachings. It does not trespass upon the province of the Church. It is but a handmaid to religion. In this aspect its utility cannot be exaggerated. I do not know who wrote the Manual of the Grange, whether it was the product of one mind or many minds. But this I do know, that out of the sacred Scriptures there is not to be found a better compend of human conduct than is contained in this little Manual. No person, male or female, young or old, can be governed by its precepts without becoming personally better or wiser, or, in other relations, more useful members of society."

Reflections.

[FOR THE AMERICAN FARMER.]

All suffering doth destroy or is destroyed, even by the sufferer, and in each event ends.—Some with hopes replenished weave the web again—others wax pale and ghastly, and perish upon the reed on which they leaned; some seek devotion, toil, war, good or crime, according as their minds were formed to sink or climb. So sings the bard, and how literally true do we find it in every-day life.

Our militant life is a rapidly-changing panorama of joys and sorrows. It seems to be an arrangement in the divine economy that our natures shall be perfected only through fiery trials and that every pleasure here shall be short in duration; else we would lose sight of the Giver in the gift, and our hearts be too much rivetted on earthly bliss, and thereby lose the bliss of heaven. The longer I live, the more plainly do I see and feel the wisdom of the Creator in the ends to be met justifying the means. God is great, God is good, and God is wise, is so plainly written on the whole face of visible nature, and indelibly stamped on the hearts of the pure in spirit, that it is not necessary to revert to Athenian philosophy or the so-called wisdom of modern science to develop within us something better. *Their* wisdom is sensual, devilish and foolishness before God, for they unwisely agitate and falsely color truths coeval with time, and lasting as eternity. Man's wisdom is strictly derivative and limited; like his first progenitor, he may essay to reach out his puny hands to grasp at one reach the illimitable in knowledge, and seek to survey at one glance the boundaries of time, only to fall back in the slough of his own folly.

We shall *know* as we are known, only when we have passed through a process of corrective and fiery discipline, accepted with humility,—thereby properly prepared for that state in which knowledge shall not add to our arrogance or foster our pride. Man is the most unaccountably strange being, so far as we know, in the whole creative range of God's providence. It is passing strange that he should so act in his primeval state as to forfeit his tenure to his allotted home in paradise. It is stranger still that through all his defections since, attended as they have been with such direful results, that he should continue to dare the vengeance of Heaven, and remain unimproved with the roll of ages, the lights of experience, and the attendant suffering his course evokes.

Yet we see in this intensely scientific age, with the beacon-lights of ages strung out in line of the mariner's progress, a continual shipwreck; proudly and defiantly throwing down the gauntlet of infidelity and dogmatically opening up a new way to the truth, which in fact is an Athenian assumption of impiety dedicated to the unknown God.

Reason is a myth, unillumined of heaven, and the farther the mind of man stretches out to explain unknown causes and to dive in the hidden arcana of nature, the more it becomes enfeebled by the effort. Limited his sphere of knowledge and action will ever be in his finite state; his greatest wisdom consists in his asking light of Heaven to guide his footsteps in allowable paths; to develop his resources as his strength will support it, and increase his treasure in earthly vessels, as his successive merited actions may deserve, and quit playing such high fantastic tricks before heaven as to make even angels weep. The boast of heraldry, the pomp of wealth, learning and power is ignominiously closed in with the grave, and the boasted wisdom of all earth's proudest savans, if concentrated in one brain, will but dimly light the passage from gloom to glory, whilst the dullest intellect of time connected with a pure heart will cast an effulgent halo of glory o'er his voyage from time militant to triumphant eternity. JNO. D. THORNE.

Halifax Co., N. C.

More Good Words.

"One of the oldest and ablest agricultural monthlies in the United States."—*Farmer and Mechanic, Leesburg, Va.*

"The *Farmer* was the first agricultural journal published in America, and is better now than before, as a glance at the December number will show. It contains interesting reading matter for every member of the family, and its articles are always valuable, timely and suggestive."—*Baltimore County Herald, Towsontown, Md.*

"If any of our friends are desirous of subscribing for a first-class agricultural monthly magazine—one in every particular that is scientific and purely good and useful,—let them send for *The American Farmer*."—*Spirit of the South, Rockingham, N. C.*

"Every farmer ought to have it."—*Times, Culpeper, Va.*

"*The American Farmer*, for December, has come. It is taken by so many of our North Carolina farmers, that we deem it unnecessary to speak of its merits *in extenso*; if it was not the farmers' guide it would not be so widely and favorably known."—*Sun, Concord, N. C.*

"Contains a galaxy of good things every month."—*Scientific Farmer, Amherst, Mass.*

"Should be in the hands of almost everybody. It is a really good and truthful monthly publication, so much so that it is called the "Old Reliable."—*Banner of Liberty, Libertytown, Md*

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☞ We have, too late for this No., an interesting letter on Lucerne, from Mr. Popplein, which will be given in our March issue.

Baltimore Markets—January 31.

The quotations below are Wholesale Prices.

Breadstuffs.—*Flour*—Market quiet but prices steady. We quote Howard St. Super $4.00; do. common to fair Extra $4.25@5.00; do. good to choice do. $5.25@5.37; do. Family $5.50@6.75; do. fancy Family $7.00; Ohio and Indiana Super $4.00; do Extra $4.25@4.75; do. Family $5.25@6.56; Northestern Spring Extra $5.00@5.75; City Mills Super $4.25@4.50; do. Standard Extra $5.75@6.25; do. Rio brands do. $6.75@7.00; Fancy brands $8.75. Rye Flour $6.00@6.25; Corn Meal city Mills $3.25; Western $3.00.

Wheat.—Demand light but prices firm. Quotations: Southern red, good to prime 135@147 cents; amber 152@155 cents; white 150@155 cents; Western No. 2 red, 137@138 cents,

Corn.—Dry Southern in good demand. Western active. We quote Southern yellow 56@59 cents; white 55@62 cents; Western mixed 61 cents.

Oats.—Receipts light, and market firm for bright lots. Sales of Western bright at 48 cents; do. mixed 46@47 cts.

Rye.—Dull and quoted nominal at 80@83 cents for good to prime.

Cotton.—Market dull and sales light. We quote Good Middling 13 cents; Middling 12½; Low Middling 12 cents; Good Ordinary 10¾ cents.

Hay and Straw.—In moderate demand. Cecil Co. (Md.) Timothy $23@25; Penna. $22@23; Mixed $18@20; Clover $18@20; Wheat Straw $13; Oat $15; Rye $20 ₮ ton.

Live Stock.—*Beef Cattle*—Not very active. Quotations at last market: Best on sale, 6@7¼ cents; generally rated first-class 5@6 cents; medium a good fair 4¼@4¾ cents; ordinary thin steers, oxen and cows 3¼@4 cents. *Hogs*—Tendency a little downward, with sales at 9½@10¼ cents. *Sheep*—Not very active, with quotations 4½@7 cents.

Mill Feed.—City Mills Middlings and Brownstuff $20; Western Bran and Shipstuff $19 ₮ ton.

Provisions.—Market strong. Bulk Shoulders quoted: 8¾ cents; clear-rib Sides 11¾@12 cents; Bacon Shoulders 9¼@9¾ cents; clear-rib Sides 12¾ cents; Hams 16 cents; Lard 13¾ cents; Mess Pork $21.25. *Butter*—New York tubs 30@33 cents; Western 22@23 cts. *Cheese*..New York 13@13¾ cents; Western 12@12½ cts.

Salt.—Liverpool ground Alum $1.16@1.25; fine $2.10@2.15 ₮ sack. Turks Island 35 cents ₮ bushel.

Seeds.—Clover active, at 13¾@14 cts. ₮ lb. Timothy $3.00; Orchard Grass $3.00@3.15; Red Top $1.25 ₮ bushel.

Tobacco.—Receipts of Leaf are light. Prices are nominally: Maryland frosted $3.00@4.50; common to good sound $5.00@7.50; middling to fine $7.50@10.50; fancy $12.00@15.00; upper country $6.00@25.00; ground leaves $1.50@7.00.

NEW ADVERTISEMENTS.

L. H. McGinnis—Adjustable Tooth Harrow.
H. P. Underhill—Probesteier Seed Oats.
Scientific Farmer Co.—Scientific Farmer.
Geo. Austen—Seed Oats for sale.
J. Wilkinson—Improvement in Dairies.
J. Howard McHenry—Thorough-bred Stallion for sale.
J. Bolgiano & Son—Seeds.
E. P. Thomas—Jersey Bull, Evaporator and Sorgho Mill for sale.
George Page & Co.—Engines and Machinery.
Griffith & Turner—Agricultural Implements, Fertilizers, Seeds, &c.
Ellwanger & Barry—Trees, Shrubs.
Jas. Vick—Flower and Vegetable Seeds.
W. F. Massey & Co.—Vegetable and Flowering Plants, Seeds, &c.
John Saul—Plants, Trees, Seeds, &c.
J. M. Thorburn & Co.—Flower Seeds.
B. M. Rhodes & Co.—Orchilla Guano.
L. J. Miller—Farm and Feed Mills.
J. H. G. Schimpf—Marble Work.
Dufur & Co.—Wire Railings, &c.
Kanawha Pump Works—Cucumber Pumps.
Sam'l Elder & Co.—Commission Merchants.
L. R. Schnebly—Short-horns for sale.
T. J. Lea—Berkshire Pigs for sale.
O. H. Hicks & Co.—The Lockwood Steel Hoe.
G. P. Rowell & Co.—Advertising Agents.
W. S. Duncan—Potash Salts, Navassa Guano, &c.
Penna. and Northern Central Railway Co.—Route to Southwest.

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Portable and Stationary Steam Engines and Boilers, Patent Portable CIRCULAR SAW MILLS, Portable Grist Mills, Horse Powers, Leffel's Turbine Water Wheel, &c.

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feb-1y AGRICULTURAL ENGINES A SPECIALTY. BALTIMORE, MD.

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